THE BOSTON
Medical and Surgical
JOURNAL

VOLUME 197 FEBRUARY 2, 1928 NUMBER 31

ORIGINAL ARTICLES

CLINICAL OBSERVATIONS ON "WELL" PATIENTS*

BY REGINALD FITZ, M.D.

INTRODUCTION

MEDICAL journals and text-books usually focus their interest upon descriptions of disease, and one generally hears discussed at medical meetings subjects which bear on the treatment of various symptom-complexes having an underlying organic pathology and which can be given a definite name. Yet the average internist doing a general medical practice sees many anatomically "well" patients in the course of a year's work, and contends with the medical problems of "well" individuals almost as frequently as he does with the medical problems of those "ill" in a pathological sense of the word.

I have recently studied the records of a series of 1000 unselected medical cases. In approximately a third of these, it was impossible for the examining doctor to find evidence of any definite organic disease at the time of his first examination. This experience is probably not at all abnormal. I imagine that any general practitioner sees a larger group of "well" people in his medical career than any single group of people ill with a given disease. In a sense, his "specialty" is that of directing the health problems of "well" people,—a most fascinating and important specialty, deserving more serious consideration than it often receives.

One hundred and fifty of these "well" patients have been followed for periods of time varying from one to three years after their original examination and have so far failed to develop any chronic progressive disease. It is reasonable to conclude, therefore, that the original diagnosis of "No organic disease" was correct, in at least the great majority of these cases, and that the selection of their records as the basis for the following study was proper.

THE PRESENT LIFE CYCLE OF WELL PEOPLE

It is interesting to try and build up some sort of a mental picture of the average life cycle through which move those of us who keep "well" in the turmoil of our present manner of living. Such a picture has been constructed from the data available in these cases from three viewpoints: how "well" people grow; what sicknesses they have most frequently; how they conduct themselves as social animals.

I am sorry that but an occasional "well" child in the first decade of life was observed. Boys and girls, however, develop tremendously during the second decade, gaining amazingly in height and weight.

TABLE 1

THE SIZE OF NORMAL MEN

Age	Cases	Ht. Average	Wt. Average	Age Average	Maximum Ht.	Range Wt.
11-20	14	5'7"	129	16	5'4" to 6'2"	68 lbs. to 175 lbs.
21-30	23	5'9"	147	26	5'7" to 6'2"	117 lbs. to 182 lbs.
31-40	26	5'8"	155	36	5'5" to 6'1"	120 lbs. to 219 lbs.
41-50	13	5'8"	151	46	5'4" to 6'2"	120 lbs. to 203 lbs.
51	6	5'8"	170	57	5'7" to 5'9"	132 lbs. to 210 lbs.

Table 1 records figures available on the size of a number of "well" men. The average height for this group was attained at an average of sixteen years. The average weight curve is interesting: one wishes there were more data in order to make it more convincing. It appears, however, that in the decade between twenty and thirty there is a tendency for "well" men to gain weight rather rapidly, reaching at the age of thirty or thereabouts a weight figure which tends to vary but slightly during the good years of most perfect physical and mental activity. After fifty the "well" man tends to gain weight rapidly again—perhaps because he takes his exercise less seriously, and has

*From the Medical Clinic of the Peter Bent Brigham Hospital, Boston.

Presented before the Worcester District Medical Society, Worcester, Massachusetts, October 12, 1927.

more leisure for what might be called serious eating and drinking.

Another interesting point which should be emphasized is the extraordinary variation in height and weight encountered in the examination of even a small number of "well" men of about the same age. It is such variation that makes it difficult to standardize a given, "well" individual's weight from life insurance tables. The thin man who wants to be fattened may be a constitutionally thin chap running an entirely normal weight curve at a low level, and the fat man, thirty pounds overweight by insurance tables, may be a naturally husky fellow who would be made miserable by any radical attempt at weight reduction. I have implicit faith in the importance of body weight. Sudden gains or losses are always significant. Weight curves, however, must always be interpreted in individual rather than in average terms or else they become misleading.

It is very gratifying to see the large number of tall men that are being developed in this country. The average male height in this series was five feet eight inches and there were a great many six-footers encountered, hard in proportion, who gave a tremendous sense of physical powerfulness.

The female of the species is shorter and lighter than the male.

As can be seen, women, like their brothers, gain their full growth at about the age of sixteen years, and tend to increase in weight up to the age of fifty. Women apparently often show involutional changes rather earlier than men so that after fifty there is a tendency to shrinkage with a perceptible weight loss. There is great variation in height and weight at each decade so that the proper interpretation of feminine weight curve is, again, very important.

Big women are not infrequently encountered. If it is true that mental and physical vigor tend to develop together, and if our country continues to improve at a sufficiently rapid rate the present stock of tall strong young people, we can look into the future with calmness and equanimity.

The question of maturity and senescence is worth considering. It is difficult to determine at all accurately at what age normal boys become men, and normal men become senile, as the process is so gradual. Data were available, however, to show the age at which "well" women usually begin to menstruate, and have the menopause.

TABLE 2

THE SIZE OF NORMAL WOMEN

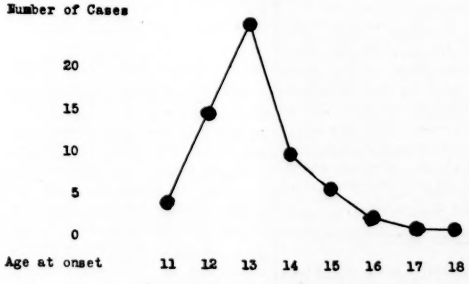
Age	Cases	Average Ht.	Average Wt.	Average Age	Maximum Ht.	Range Wt.
11-20	14	5'4"	112	16	4'10" to 5'9"	75 lbs. to 144 lbs.
21-30	24	5'4"	126	26	4'10" to 5'7"	91 lbs. to 160 lbs.
31-40	17	5'3"	136	37	4'10" to 5'9"	104 lbs. to 179 lbs.
41-50	14	5'5"	147	46	5'0" to 5'7"	96 lbs. to 196 lbs.
51	5	5'4"	139	56	4'11" to 5'5"	96 lbs. to 167 lbs.

TABLE 3

MENSTRUAL HISTORY OF NORMAL WOMEN

Beginning Menstruation

(66 Cases)



Menstruation ended naturally between 42 - 53 years

(11 Cases)

It appears that most women begin to menstruate at some point between twelve and fourteen years old. Occasionally menstruation begins a little earlier and more often a little later. The periods are quite regular, usually last for four or five days and are practically symptomless. There may be a little prostration, pain and sense of nervous unsteadiness. On the whole, however, the "well" woman goes through her monthly periods with but little physical or economic disability. Significant dysmenorrhoea or marked loss of blood usually depends upon some organic lesion.

The menopause, as judged by eleven cases, comes on in "well" women at some time between the ages of forty-two and fifty-three. It may approach gradually or rapidly, with or without more or less prostrating and long-continued psychical disturbances.

"Well" people almost invariably acquire in the course of their careers a certain amount of medical or surgical experience.

TABLE 4

THE COMMON PAST ILLNESSES AND OPERATIONS OF MEN AND WOMEN

150 Cases

Number	Per Cent	
Almost all	100	had Measles, Chicken-Pox or Whooping Cough in Childhood.
103	70	had one or more severe attacks of "Sore Throat".
72	50	had one or more respiratory infections usually called "Influenza".
33	22	had Scarlet Fever.
26	17	had Diphtheria.
20	13	had Pneumonia.
11	7	had Typhoid Fever.
5	3	had Tuberculosis as Pleurisy with Effusion, Tubercular Glands or Pulmonary Tuberculosis.
71	50	had one or more second teeth removed.
50	33	had no tonsils.
31	20	had no appendices.

Table 4 records the common past illnesses and operations experienced by this particular group. Almost everybody, apparently, picked up one or more of the minor contagious diseases of childhood, and went through them without scars. Upper respiratory infections. including, as a group, "sore throat", "pneumonia", and "influenza", bothered a great many. Typhoid was fairly uncommon and known healed tuberculosis was rare.

In regard to operations, the dentists and nose-and-throat men appeared to do a thriving business. In the field of general surgery, appendectomy was the favorite operation, though there were several with hernias or perineums repaired or hemorrhoids excised, and such more or less important organs removed as the gall-bladder, prostate gland, uterus, tube or ovary.

The social side of "well" people's lives is of possible medical importance on account of the sexual relationships involved. In this series, 50% of 79 women of marriageable age were single and 27% of 63 men. These figures may be misleading, as perhaps an unduly large proportion of "well" spinsters and bachelors came for examination because their spinsterhood and bachelordom gave them the necessary time and opportunity in which to become introspective and concerned with health problems. In any event, the relatively large proportion of single people of marriageable age was striking.

Marriage is essentially a young person's business. This fact is shown by Table 5.

TABLE 5

MARRIAGE AMONG NORMAL PEOPLE

Age of Women at Marriage	
Under 20	10 Cases
21-30	23 "
31-40	3 "
40	1 Case
Age of Men at Marriage	
Under 20	1 Case
21-30	23 Cases
31-40	15 "
40	1 Case

As can be seen, the women tended to marry at an earlier age than the men though neither sex was particularly apt to embark for the first time upon a matrimonial cruise after the age of forty.

The results of an analysis of the children of these various marriages is disconcerting. Among eighty marriages in which one partner was known to be "well", thirty per cent. were childless. Among forty-six marriages resulting in children, twelve couples had only one baby, seventeen couples two babies, and fourteen couples three babies. Our Puritan forebears would be disturbed by these figures. If nowadays a great many marriageable people are not getting married, if nearly a third of present-day marriages are without issue, and if the majority of married couples who do have children rarely have more than three, one must anticipate that, sometime in the future, American death-rates will exceed American birth-rates and that our original American stock will disappear.

From these tables, one can construct some sort of a mental medical picture of modern life among "well" people. Boys and girls grow up, gaining prodigiously in weight and height between the ages of ten and twenty. At some time in their early days they have measles, mumps, whooping-cough or chicken-pox, and less frequently diphtheria or scarlet fever. They may have frequent upper respiratory infections at any age. They are likely to have their ton-

sils removed at some time and one or more second teeth for prosthetic purposes or because of decay from carelessness, and very likely their appendices for an acute attack of appendicitis or because they have "indigestion". The girls begin to menstruate at about the age of fourteen and the boys to have their voices change. Sometime between twenty and thirty many of the girls get married to men a few years older than themselves, though many women and men stay single from matters of choice, or economy. If they marry, they content themselves with small families. As time goes on both sexes gain weight, the women more rapidly than the men. Finally, old age sets in with various involutional changes, and some manifestations of vascular disease appear. After this, the active, healthy, *well* part of a normal individual's life is over. At any period in life, various acute infectious diseases, or accidents may be encountered, or the "well" person may insidiously develop a chronic progressive malady which makes him an invalid. On the whole, however, man is meant to be healthy and long-lived, changing but little from year to year, and enjoying a long life-cycle of perfect physical and mental activity.

THE HYGIENE OF "WELL" PEOPLE

Practically all of the cases in this group were working-folk, leading ordinary, average lives. They reached an office at about nine in the morning and worked until five or six at night. They took tea or coffee three times a day. Most of the men used tobacco, "moderately", and many of the younger women smoked an occasional cigarette. Only a rare man was drinking at all hard, many having used no alcohol since Prohibition came in. A few of the young women took cocktails on occasion, but on the whole neither sex abused alcohol in any sense of the word. They ate breakfast and supper at home, lunching down town at various restaurants. They usually ate a fairly balanced ration containing eggs, meat or fish, potato, green vegetables and fruit, bread, butter, milk and cream. They took their meals fairly regularly, and slowly. Most of the women were more or less constipated, requiring either occasional or regular cathartic medicines, while the men less often had such troubles. Each patient got a very variable amount of sleep, though insomnia as a symptom was unusual. Few had any particular hobbies in the way of recreation or exercise. Almost everyone who considered himself ill had some gnawing form of worry or unhappiness to contend with. There seemed no gross common defect in hygiene beyond discontentment and worry which could apply to the majority of the cases.

THE SYMPTOMS OF "WELL" PEOPLE

About a third of the patients complained of "indigestion"—the most common single complaint encountered. Others sought medical advice because they had heard of the importance of periodic health examinations and wanted to be "checked up". Some thought they had heart, lung, kidney or nerve trouble, or such diseases as diabetes, cancer or goitre. Others had headaches, backache, or other ill-defined aches and pains. A few wanted to have children and couldn't, while more had children and were concerned about not having any additional ones. There were fat people who wanted to get thin and thin people who wanted to get fat. In brief, as far as could be judged, "well" people consult doctors for every conceivable symptom under the sun. The point is they do not consult doctors for curiosity's sake but because they have some definite, to them perplexing problem, about which they want advice. They hope to receive a carefully considered, sound, helpful opinion.

MEDICAL FASHIONS AND FOIBLES

In going over the records of these cases, one is struck by the constantly changing medical fashions that influenced the patients at various times. For example, tonsillectomy, at present, is a most popular operation. Children have their tonsils and adenoids removed with the idea of preventing acute attacks of tonsillitis, of improving the breathing space, of avoiding the future development of rheumatic fever or nephritis. Young people have their tonsils taken out after a severe attack of tonsillitis in hopes that future trouble may be forestalled. Old people have their tonsils removed in the desire to clean up possible foci of infection for gall-bladder disease, peptic ulcer, vascular disease, or for almost any other reason. And yet do we really know all there is to be known about the function and pathology of the normal or diseased tonsil? Are we certain that almost universal tonsillectomy is a wise form of treatment?

The same line of reasoning applies to the removal of teeth. Certainly normal teeth are sacrificed on very flimsy evidence for a variety of reasons. While there is no doubt that infected teeth may play an important part in exaggerating certain marked conditions, yet it is by no means clear that the almost wholesale removal of teeth is a sound tendency.

Between the age of ten to twenty when youth is bursting into manhood, and later in life when involutional changes occur, it is now often the fashion to make a variety of metabolism tests and to talk more or less glibly about endocrine imbalance. Yet do we really know that the girl whose menstruation is irregular and whose basal metabolic rate is a few points subnormal needs thyroid extract or pituitary or some ovarian mixture to help her along? And is the woman at the time of the menopause necessarily improved by glandular therapy when her nervous

system is upset and her blood chemistry or differential leucocyte count somewhat atypical? Cannot excellent therapeutic results be obtained in such cases by simpler methods?

A few years ago we were taught that a systolic murmur over the precordium was caused by valvular insufficiency of the heart. Now many of us believe that a systolic murmur is the absence of a rheumatic history, hypertension or demonstrable cardiac hypertrophy is of no significance and almost to be expected if one listens carefully enough.

And so it goes through the entire realm of medicine. Albuminuria does not now necessarily mean nephritis, nor glycosuria severe diabetes requiring insulin. A palpable right kidney does not now always demand fixation and we hear but little of Dietl's crises. The retroverted uterus no longer always necessitates a ventral fixation nor does a small ovarian cyst demand a radical operation. Even the chronic appendix problem is still a subject of debate, and we know that all people with hypertension do not necessarily die with any great promptitude.

There are many features about the life-cycle of "well" people which are not clearly understood and many problems to be attacked by simple methods of clinical investigation. It is important for us doctors to develop a critical sense of balance in managing and studying these cases and to remember, above all, our inherent weakness of grasping at anything new in medicine—whether it be new diagnostic methods, new remedies, or new names for old diseases. Usually, in the case of any "well" person, time proves a careful nurse and the patient comes to feel better sooner or later, regardless of what we do to him.

THE TREATMENT OF "WELL" PEOPLE

There is a final point which the study of these records of "well" people has brought out and which is probably of greatest significance. It seems fairly clear that methods are now available and in general use for the recognition of most organic diseases. A negative examination by a competent observer almost always means that the patient under consideration has no serious malady. Yet people with negative physical examinations are constantly flocking to doctors' offices. On further analysis it appears that in the majority of such cases the one common factor which brings them to a doctor is some form of unhappiness or worry. There is a tendency at present for doctors to lay too little stress upon this fact. Medical men as a rule are busy and do not like to waste time. It is much easier and requires far less skill to tell a patient to have his teeth or his tonsils extirpated, to have an appendectomy or to take a tonic than to sit down and unravel a complex maze of worries or fears. "Well" people, however, do not need medicine. They get along much better without any drugs, especially if, instead, they have an opportunity to tell their troubles to a sympathetic listener. Often the reassurance afforded by a completely negative examination coupled with a proper mental airing is extraordinarily curative.

CONCLUSIONS

On the whole, "well" patients seek medical advice from doctors for various kinds of health problems. The general practitioner should naturally be the proper person to solve most of these problems by virtue of his medical shrewdness in diagnosis and therapy and above all by his knowledge of human nature. He must make up his mind, however, to attack the problems of "well" people with the same enthusiasm and vigor that he attacks the problems of "sick" people. If he fails to do this, he will treat a large percentage of his patients inadequately.

A few years ago, Dr. William J. Mayo told me that in his experience he was continually struck by the large number of people who came to him, not because they knew or thought they had organic disease, but because they wanted help and advice about the simplest sort of medical matters. His feeling was that the modern doctor was, perhaps, over-trained in the diagnosis and treatment of advanced organic disease and was often over-fascinated by the array of laboratory tests which were now at his disposal. As a result, many were losing interest in the less "scientific" sides of their work, were getting away from the homely old-fashioned practice of clinical medicine which, after all, was so full of human interest and opportunity for service, and were deliberately, through indifference, driving countless patients to the various medical cults. Dr. Francis Peabody has recently expressed much the same thought in a more epigramatic fashion. He says, "The secret of the care of a patient is in caring for the patient". Let us not forget this secret!

TWO WEEKS COURSE FOR COMMANDING OFFICERS AND EXECUTIVES, MEDICAL FIELD SERVICE SCHOOL, CARLISLE BARRACKS, PA.*†

BY LEON S. MEDALIA, M.D.

THE following is an account of two weeks "active duty" for training purposes of the Reserve Officers at the Medical Field Service School, Carlisle Barracks, Pa.

The assignment to "active duty" is left to the choice of the individual Reserve Officer. The Corps Area Surgeon determines upon the eligibility of the Reserve Officers for particular courses. The eligible officer is then asked whether he wishes to accept active duty. The Corps Area Surgeon sends the names of those who accept to the Surgeon General, who designates the ones to be sent to the course for training to the Adjutant General's office. The assignment is not compulsory and if anything unexpected occurs, making it impossible for the officer to attend even after he has accepted, he may notify the Corps Area Surgeon and be released from active duty. Sufficient time is allowed the individual who has been designated for active duty to arrange his affairs at home in order that he may attend with the least possible harm to his private work and the least inconvenience to his patients. The following notice from the Corps Area Surgeon, for instance, was received by the writer over a month prior to the date of his assignment to active duty:

"Pursuant to your acceptance of active duty training at Carlisle, Pennsylvania, in the course for Commanding officers and Executives, September 11 to 24th, 1927, you are advised that you have been designated for this course and may expect your orders within a few days." This notice needs no comment. The writer certainly appreciated the advance notice which made it possible for him to arrange things at home in such a way as to render his absence of as little inconvenience to his private work as possible.

The main purpose of this article is to stimulate other Reserve Medical Officers to accept active duty when asked, and the writer therefore feels that an account of the method of instruction of the Medical Service School would be of interest. The school at Carlisle is the best of its kind for the purpose of training medical officers and medical personnel. The very best men have apparently been chosen from amongst the Regular Medical Officers for the staff of instructors. Nothing has been left to chance. Everything pertaining to medical service in time of war has been made a matter of study and research. Much of this research is carried on in this school by the instructing staff, who are thus enabled to make the course highly valuable and interesting. Everyone can appreciate the value of a demonstration, for instance, of the latest changes in the equipment of the medical personnel by the very man who was instrumental in developing these changes by painstaking research and tests in the research laboratory at the School, or a demonstration of equipment used in the various hospitals in combat by the man who developed such equipment by hard laboratory research work on the premises. The demonstration under such circumstances becomes highly interesting and the knowledge gained is definite and positive in nature. In other words, the instruction is first-hand and personal in nature and not something which has been read up by the instructor, or just hearsay knowledge. This will be the more appreciated as attention is called to the different items on the program of instruction. Such instructions could be made use of not only for war-time purposes, but also during peace time activities.

*Read at a meeting of the First Corps Area Medical Department Reserve Officers, December 14, 1927.

†Published with permission of the Surgeon General, U. S. Army, who is not responsible for any opinion expressed or conclusions reached herein.

HISTORICAL

Before proceeding with the actual course of training and the reaction of the Reserve Officer, who is primarily a physician in civil life, to such training, it will be of interest to briefly describe the history of the Medical Field Service School at Carlisle, its development and its physical make-up.

Carlisle Barracks was originally established as a prison camp by Washington during the Revolutionary War in 1776, for the Hessian prisoners taken at Trenton, and for over one hundred years it was used as an Army post. From 1879 until 1918 it was under the control of the Department of the Interior and used as a college for the Indians. It was known as the Carlisle Indian School. The need for continuing the school as an Indian School ceased in 1918, at which time it was turned into a hospital which was known as General Hospital No. 31. It was functioning as a hospital until 1920, when it was given over by the Government to the Surgeon General for the purpose of establishing the Medical Field Service School. The School consists of numerous buildings, dormitories, a large auditorium, a large gymnasium, a football and baseball field, together with several hundred acres of land; in short, all that which made up the Carlisle Indian School became the property of the Medical Field Service School. In addition, various buildings were added when it was used for the purpose of a general hospital. It can readily be seen that such a group of buildings with their surroundings, campus and hundreds of acres of land would lend itself in an ideal way for the purpose for which it is now being used. The geographic location of the school makes it

rather central for the wide range of territory it has to serve.

Thus the army post of over 100 years, an Indian college for nearly 40 years, is now serving the country as a training school of the highest type for medical officers and medical personnel for the purpose of military preparedness. The Government could not have chosen a better place for the purpose, nor could it have put the abandoned college to any better use.

COURSES OF INSTRUCTION

This article is not intended for the perusal of the Medical Officers of the Regular Army. They have access to more technical and detailed information. It is intended to give the Medical Reserve Officers and the medical men in civilian practice a general idea of the function of the Carlisle Field Service School and what benefit a Reserve Officer may hope to derive from attending the school. Details of instruction will therefore be omitted from this report.

Those of the profession who have not been in the World War and the younger graduates may have a lack of understanding as to what the school at Carlisle is intended to accomplish. The function of the school is not to train men to become physicians, or to teach different specialities in medicine. Medical subjects are taught in the Army Medical School in Washington. The function of the Carlisle Field Medical Service School is what its name implies, that is, it is to teach both medical officers and personnel the service they are to render the Army in the field of combat during war. In other words, it is the business of actual war preparedness from a medical standpoint which is taught there. Those responsible for the Medical Service in the Army take the responsibility seriously. They feel that the recurrence of such an incident as happened at "Bull Run", for instance, in the Civil War, where wounded men were left on the battlefield in Virginia for ten days undergoing untold suffering, should not occur. The proper *tactical* training of the medical personnel during combat will not permit the breaking down of the evacuation of the wounded to the rear, where they can best be cared for. The fact that it is possible to operate a medical military service without its breaking down during combat has been definitely established in France, where, during the World War, over 250,000 wounded were evacuated from the combat zone.

If one reflects upon the magnitude of the medical problem during the World War, when over 7,000,000 men were examined and over 4,000,000 sick or wounded were treated in military hospitals, it becomes evident that definite medical military training is necessary during peace time in order to avoid unnecessary suffering in case of an emergency. The magnitude of such a problem should not permit any medical man to refuse a commission in the Reserve, or when in the Reserve, to refuse "active duty" for two weeks in a year as his share towards preparedness for the humanitarian service that a medical man is called upon to render his government in case of an emergency.

In order to further bring home the necessity of proper training for military medical service in time of peace, one has only to call attention to a few figures of the medical strength of the army just prior to the World War and compare it with the strength of the medical personnel at the time of the armistice. Thus the medical officers numbered 491 before the war and 31,000 at the time of the armistice. Since the Dental and Veterinary Corps are included in the Medical Corps, it might be well to refer to the number of dentists and veterinarians in the service. Before the war there were 86 dental officers in the army and 5000 at the time of the armistice. The Veterinary Corps numbered 62 before the war and 2,250 at the time of the armistice. The nurses, for instance, in the military medical establishments before the war numbered 403, while during the war there were 21,000 nurses. The enlisted personnel, that is, orderlies, hospital aides, ambulance corps, etc., numbered 6,500 before the war and jumped to 280,000 men during the war.

Those who believe in non-preparedness may call attention to those very figures as a possibility of repeating the same "overnight" changes in case of another emergency as were made during the World War. They may argue, "Why go through all this peace time preparation, with all the expenditure it entails—why not wait for the emergency and then, if necessary, the personnel will be there to meet the situation?" It does not require much argument to answer such questions. It is easy to comprehend the confusion, the mistakes, and the extravagant expenditures, both of money and of lives when an untrained personnel of medical officers and men are suddenly brought into being to accomplish a task which requires considerable training. There is no use denying that considerable confusion, many mistakes and an unnecessary loss of life did occur, though not to such a degree as might have been the case if we had not been given time to delay our actual entry into warfare by the security afforded us by the "Allies" who were holding back the enemy. The possibility of having "Allies" to hold off the enemy in a future emergency and again permit the delay of war operations on our part is almost inconceivable. No matter from which angle one looks at the subject of preparedness—medical preparedness—we are forced to reach the one conclusion, that from the humanitarian standpoint, we cannot and we must not shirk the responsibility which is ours as medical men. We must do our share to the country which gives us protection and security and which demands very little

in return by way of preparing for possible emergency.

Even a superficial study of the activities of the Medical Field Service School at Carlisle would be sufficient to satisfy anyone that the arrangement for training medical officers and personnel there for a national emergency is perfect. And when one has come in actual contact with the individual members of the faculty, one is impressed with the high degree of responsibility and instructing ability with which the teaching staff is imbued. With the exception of about one month, every calendar day is given over to training.

It will be out of the scope of this paper to describe in detail all the different courses given at the school. They can only be briefly touched upon:—a basic course lasting four months (February 1 to May 28) is given for officers of the Medical Department of the Regular Army, including dental and veterinary officers. This course deals with the general subjects of administration, military sanitation, military art, military training and logistics, which includes the general scheme of procurement, industrial preparedness, property accountability, purchases, storage and distribution of supplies.

Another course of six weeks is given in the form of a Reserve Officer Training Camp (June 10 to July 21). This course is for students of the Medical, Dental and Veterinary R. O. T. C units of the various respective schools in the first five corps areas. This is an advanced R. O. T. C. course which trains the men for the positions of Junior officers, including the grades of Lieutenant and Captain. This is a very valuable training; it prepares the younger men for the positions they are to occupy in case of emergency and prepares them from the bottom up. One can not help but feel that the young men who go through R. O. T. C. training will become the future backbone of the Reserve officers Medical Department.

Another two weeks Reserve Officers' course (July 3-17) is devoted to the training of whole detachments and medical regiments, including the officers assigned to such units. Another six weeks' course (September 1 to October 14) is given the Medical Officers of the National Guard and organized Reserves. It is mainly concerned with the training of such officers in the field of operations in time of war. It includes problems of evacuation from the combat zone to the interior, or to the communicating zone where the general hospitals are. These officers have to know where to establish the first-aid stations and the other mobile hospitals. It is to them that the military authorities will look to take care of the wounded with as little loss of life as possible. Theirs is a man's job in case of a national emergency.

Another two weeks' course is given (September 11-25) to higher grade Reserve Officers. This is a course for Commanding Officers and Executives, including officers of the grades of Colonel, Lieutenant Colonel and Major, and those who have definite assignment, i. e. commanding officers of hospital units, chiefs of surgical or medical services in general hospitals, and commanding officers of corps area laboratory sections. This is the course that the writer attended, and about which he will have more to say later.

There are two other courses—one a two months' course (October 1 to November 30) which takes up the training of the non-commissioned officers of the Medical Department of the Regular Army and the National Guard. Everyone who has seen service will appreciate the value of such a course to the Army. The other course, also lasting two months, (Oct. 15, to Dec. 14,) is an advanced course for Senior Officers of the Regular Army, National Guard and Reserve Officers who have been designated for special study and research, relative to the Medical Service of an expeditionary force, including all the problems that pertain to it; such as public health administration of the forces, as well as of the occupied territory, also evacuation problems, hospitalization, etc.

The work of training just described is not all that this bee-hive of activities carries on. A very important function is the research study of everything pertaining to equipment of the personnel and studies regarding the improvement of hospitals and their equipment. The research touches every detail of the medical department equipment and activities. Actual improvement of the highest nature has already been accomplished by the research workers of the equipment laboratory. The demonstration by Major Fletcher, who is the head of the equipment laboratory and who is responsible for almost all the inventions and developments in that field, approaches that of a miracle man. The members of the class watching his demonstrations are spell-bound. For instance, from one trunk will come out a typewriter, a table, four chairs, a case for one half the trunkful of paper—material of various kinds and the trunk itself is just right to make a typewriter chair. It is not easy to describe the different ingenious inventions for which the equipment laboratory is responsible. The money-saving to the government on equipment due to these inventions of the research workers of this laboratory mounts up into millions. These improvements of the equipment of the medical soldier enables him to carry on his first-aid work while in combat with greater ease and comfort. The developments and discoveries in the research laboratories simply show the value of systematic study of every object used by the medical department without taking anything for granted. Studies are also carried on by the same workers in field-sanitation with resulting improve-

ment in the disposal of garbage, delousing facilities, etc.

NECESSITY FOR MEDICAL MILITARY TRAINING

Just a word to enlighten those of the public and the profession at large who cannot understand the necessity for military training of medical personnel. According to present army regulations and plans which were promulgated following the World War and based upon the experience of that war, the Medical Department personnel will consist of 10.5% of the general mobilization forces called to the colors. In addition there will be Medical Officers 1.2% of the total force, and 1.8% of nurses. It is also contemplated that the hospital bed facilities should comprise 15% of the total force, all of which means that there will be under the direct control of the Medical Department approximately 27½% of the total force, or 275,000 men of every million men in the field. This is a considerable army, a huge figure, which in case of a great emergency might have to be doubled and quadrupled. The officers in direct charge of such a force, if they take their responsibility (to the public) seriously, would do well to be prepared for such an emergency. The medical training alone will hardly be sufficient to administer and care for such a large force of men. The reason for such a school as the Medical Field Barracks is evident. The duty on the part of the Reserve Officers to accept training when asked by the Surgeon General becomes evident. It also behooves the young medical graduate to accept the commission in the Reserve Corps and accept "active duty" training consisting of two weeks a year in field service because before long it will devolve upon him to "carry on" what has been done by the older men ahead of him.

COURSE FOR COMMANDING OFFICERS AND EXECUTIVES

The course attended by the writer was, as already stated, the two weeks' course given to Commanding Officers and Executives from September 11 to 24th, 1927. This was the first time that the Reserve Officers who were assigned to Carlisle Barracks for training were separated into a *Junior* officers group and *Senior* officers of every million in the field. This is a group. The officers of the Junior group, who are assigned to territorial units, such as regiments and detachments, need a totally different training than the Senior officers, who are in command of general hospitals, or Corps Area hospitals. The satisfaction of such a separation was expressed by the Commandant of the school, Colonel C. R. Reynolds, in his opening remarks to the class. There were 54 Medical Reserve Officers in attendance at the course of the Senior Officers. They were from practically all the States in the Union. There were four officers from Boston: Lt. Col. Wm. R. Ohler, Lt. Col. Robert C. Cochrane, Maj. Paul D. White, and the writer. The class was camped in floored tents, supplied with gold medal cots and bedding. A list of articles to be taken along was supplied to each of the officers. The list described the uniform to be worn, housing and mess facilities. It also included a train schedule; everything was enumerated in detail; nothing was left to the imagination of the individual officer.

The Boston contingent arrived Sunday afternoon, September 10th, and was established in quarters the same afternoon. The other members of the class kept coming through the rest of the day and very few arrived on Monday. It was a fairly homogeneous group, practically all of the same stage of maturity. We all had World War experience of one kind or another.

The course consisted in part of methods of instructing enlisted men in drill, military courtesies, organization and administration of the Medical Reserve Corps, organization of the U. S. Army, industrial mobilization and procurement-planning, military map reading, general mobilization plans, general organization and administration of army hospitals, military law, sanitary surveys, sanitary orders, general system of hospitalization in the theater of operation, mess management, system of evacuation of a field force, etc.

In addition to the above there were lectures by specialists who came for the purpose from the Surgeon General's Office, Washington, D. C. They gave us the latest information and developments in medical military matters, for instance, a special lecture with lantern slide demonstration on the general system of hospitalization in the theater of operation and on the organization and administration of surgical and evacuation hospitals by Major McCornack from the Army War College; on the medical aspect of chemical warfare by Col. Gilchrist, who is the head of the chemical warfare Research Division; and an illustrated lecture on the medical participation in war plans by Major Tuttle of the Surgeon General's Office.

In addition to the lecture course, there were staged actual field exercises, enacting a miniature manœuver, showing actual casualties and the method of first-aid dressing of the wounded and evacuation in actual operation during combat;—a demonstration of the divisional medical service, including actual personnel on the field, and transportation set up in miniature;—a spe-

cial lecture on the battle of Gettysburg, and a trip to the battle-field with explanations of military and medical importance and lessons to be drawn from the same; demonstrations of the individual equipment, battalion dispensary, as designed at the Medical Department laboratory. Everything that was done in the way of instruction, whether lectures, demonstrations, miniature "set-ups" of divisional hospitals and dispensaries all brought home painstaking attention to details. The greatest care and thought was given to every detail; no stone was left unturned. Each one of the instructors seems to have a motto that he must inspire the student with methods of training that are "exact" and not "about right".

Every one of the fifty-four men from various parts of the country left with a feeling of satisfaction and with considerable personal gain in medical military matters.

A system of teaching and training seems to have been developed at this school which is worth emphasizing. The system consists of: (1) explanation; (2) demonstration; and (3) imitation, or performance by the student or pupil, which is immediately criticized by the instructor or his assistant. Another idea insisted upon for the purpose of training was that, a lesson however simple, if at all long, must be cut up into short steps or stages and the same method of explanation, demonstration and imitation should be followed. It was shown us how this is followed out successfully in training the individual and also a whole group and how the most technical and difficult performances are easily comprehended by the new recruit.

It is needless to say that the surgeons who have attended this course and who are teaching in various medical schools will do well to follow this system of teaching,—a method followed so successfully at this Medical Field Service School.

Mess management, too, was demonstrated in a way that would be of immense value to the professional dietitians of civil hospitals. It would be well for such dietitians to ask the Surgeon General's office for a course in mess management at this school. They could apply such training in civil life and at the same time it would act as a method of preparedness in an emergency.

In conclusion, I wish to thank the Commandant of the Medical Field Service School, Carlisle Barracks, Colonel C. R. Reynolds, M. C., for his helpful suggestions in preparing this paper.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE—*Science* announces that a new department for an advanced course in bacteriology and immunology has been added to the London School of Hygiene and Tropical Medicine. For this purpose a house has been secured in Gordon Square. Another new department for special instruction in epidemiology and vital statistics is to be opened in connection with the school at the National Institute for Medical Research at Hampstead. The new school, toward which the Trustees of the Rockefeller Foundation gave $2,000,000, is now being erected in Bloomsbury.

THE FACULTY OF MEDICINE AT PARIS—New laboratories for the Department of Physiology of the Faculty of Medicine at Paris, under the direction of Dr. Santenoise, were officially dedicated in November, according to *Science*. The Faculty came into possession, in 1920, of a large tract of improved property formerly owned by the College of Jesuits, which became alienated through the law pertaining to teaching religious organizations. The Faculty of Medicine has decided to establish a hygienic institute and an experimental surgical clinic, but owing to the financial crisis the government has been prevented from supplying either institution with the 5,000,000 francs promised. Largely through the efforts of the Faculty itself, funds have been obtained for repairs on the buildings and for the erection of the physiological laboratories.

THE BLINDED SOLDIERS IN GERMANY—Miss Betty Hirsh, Director of the School for Blinded Soldiers in Berlin, reported at a recent forum meeting of the Community Church, New York City, that as a result of the work in education of the blind for social usefulness in Germany 774 blinded soldiers are now engaged in profitable occupations in Berlin. The progress made from 1919 to 1926 has promoted a great movement among the blind of all countries. Although Miss Hirsh herself is blind her work has been of particular value among unfortunate soldiers, and her courage and vision of mind have been especially acute.

SAUERBRUCH GOES TO BERLIN—Professor Sauerbruch has decided to leave Munich for Berlin, where he will take over the direction of the surgical clinic of the Charité as successor to Professor Hildebrand, who is retiring. A condition of his acceptance of the call was the assurance on the part of the ministry of education that he should take over Professor Bier's clinic on the latter's expected retirement two years from now, and that a new building should be constructed for this clinic.—*Bulletin of the Association of American Medical Colleges.*

RABIES IN NEW YORK CITY—Dr. L. I. Harris, Commissioner of Health of New York City, reports that during the ten years previous to 1927 there were 2821 persons bitten by rabid dogs and treated by the department. Eighteen deaths resulted from rabies.

During 1927, 309 persons were treated for rabid dog bites. Six deaths due to rabies occurred in 1927.

These figures are impressive, and yet there are people who do not believe that there is a disease called rabies.

NEW HAMPSHIRE MEDICAL SOCIETY†

INTRACRANIAL HEMORRHAGE OF THE NEWBORN: ITS RELATION TO THE HEMORRHAGIC DIATHESIS*

BY B. P. BURPEE, M.D.

PREVENTIVE medicine during the first year of life has made great advancement during the past two decades. Increasing numbers of health clinics for infants and the increase in the personnel available through various sources for nursing supervision have cut down appreciably and satisfactorily the death rate of the first year from intestinal diseases and improper feeding. The death rate from respiratory diseases has also been decreased through the more routine use of cod liver oil and the mercury vapor lamp, thus decreasing active rickets, and so indirectly the respiratory diseases and also by the spread of propaganda towards a better understanding along matters of general hygiene.

One great persistent cause of stillborn and neonatal deaths is intracranial hemorrhage. It is here that lies the most vulnerable point for attack in diminishing further the death rate during the first year through the lowering of the rate during the first week, or in other words the lowering of the infant death rate has become an obstetrical rather than a pediatric question. As a cause of death this condition is still as big a factor as ever, accounting for half the deaths during the first two weeks. Hemorrhage within the cranial cavity is extremely common, more so it is believed now, because of the proper methods of recognition, than has before been supposed. Ten per cent. of all newborn will show blood in the spinal fluid at birth, and we know that by no means all of the infants suffering from intracranial hemorrhage will show blood. In the prevention of this condition and of the sequelae that follow later in cases surviving, lies the importance of the early recognition and proper treatment of the condition.

It is well to think of intracranial hemorrhage and hemorrhagic disease of the newborn as two separate conditions or at least to consider hemorrhagic disease as simply one of the factors predisposing towards intracranial hemorrhage, because the greatest single factor in intracranial hemorrhage is without question, and now generally admitted to be trauma, i.e., an actual laceration of some of the vessels within the cranium.

Let us first consider the pathology of this condition, that is, where the hemorrhage is located. Ehrenfest's classification is the clearest. Internal cephalhematomas or epidural hemorrhages, i.e., blood between the bone and dura, are without clinical importance, probably due to the fact that the dura is attached so closely to the inner surface of the bone. Subarachnoid hemorrhages, between the arachnoid and pia, are the most common but these also are without symptoms. Dural or subdural hemorrhages, between the dura and arachnoid are perhaps less common than the subarachnoid, but these are the ones that produce serious or fatal results. It is to this type that we usually refer when using the term intracranial hemorrhage. These may be either above or below the tentorium, i.e., either supratentorial or infratentorial, or they may be mixed. Subdural hemorrhages may occur on the surface of either of the hemispheres, but those about the tentorium are the more apt to cause serious symptoms. Hemorrhages may also occur into the ventricles, coming either from the plexus or more probably from tearing of the big vein of the cerebrum, where it enters the sinus. This is uncommon. They may also occur in the brain substance, which is decidedly rare. These hemorrhages are practically always venous blood in contrast to the hemorrhages occurring in adult life. Intracranial lesions may also occur without hemorrhage. These include contusions, ischemic areas of necrosis and slight tears of the tentorium without hemorrhage formation.

Etiology. The causes of intracranial hemorrhage may be divided into first, the one big mechanical factor of trauma, i.e., a torn vessel or sinus resulting in the extravasation of blood somewhere within the cranium, and secondly the factors that predispose towards that hemorrhage. These latter include prematurity, probably the greatest single predisposing factor, syphilis, which probably is important only insofar as it tends to cause prematurity, maternal toxemia, asphyxia, or a better term would be venous congestion, and the hemorrhagic diathesis, i.e., hemorrhagic disease of the newborn, which, as I have said, may perhaps better be considered as an entity. That trauma is the important factor is borne out by the fact that the death rate from intracranial hemorrhage is higher in the first born and also higher in males which average to be larger.

Is this condition due to poor obstetrics? Not necessarily. On that point all authorities agree. Not all intracranial hemorrhages occur in difficult labors. Many occur in normal easy spontaneous deliveries. While trauma is the chief cause, this trauma is often beyond the control of the obstetrician, let us say a physiological trauma, and when added to predisposing causes, may be sufficient to cause hemorrhage. Let me

*Read at the Annual Meeting of the New Hampshire Medical Society at New Castle, June, 1927.

†For List of Officers see page iii, Advertising Section.

illustrate this with two cases occurring within a week of each other and similar in every detail.

CASE 1. Primipara. Normal throughout her pregnancy as far as could be ascertained. She was delivered for another physician and was not seen until the head was crowning. Gas oxygen anesthesia was given for about ten minutes. On the second day the baby developed signs of intracranial hemorrhage and was treated by lumbar puncture and the injection of whole blood but died.

CASE 2 was also a primipara and was not seen until the head was crowning. Gas anesthesia. Development of symptoms of hemorrhage on the second day. She was treated by lumbar puncture and whole blood and recovered. She was normal at the end of the first year. Certainly nothing was done in either of these cases that could be considered poor obstetrics. Neither pituitrin nor forceps were used and in neither case was there rigidity of the vulvar ring. Either or both may have been due to a rather rapid labor with a too rapid compression of the fetal skull through the cervical ring with resulting hemorrhage while still in utero. Or there might perhaps have been some maternal toxemia resulting in increased fragility of the fetal vessels, although if there were it was not manifested by any objective signs in the mother.

Is the condition due to the pressure from the application of forceps? There seems to be a vast difference of opinion as to what is conservative obstetrics, the early application to prevent a long second stage or the application only as a last resort. Probably the majority are in favor of the early application and consider the possibility of intracranial hemorrhage less than when the head is allowed to bang indefinitely against a rigid perineum. We must admit, however, that two things will tend to produce damage within the head, namely the application of forceps in the wrong diameter and the use of forceps as a means to squeeze the head through a space that is too narrow for it, or, in other words, the too rapid compression of the head.

Is the condition due to the use of pituitrin? On this point authorities also disagree. DeLee is particularly rabid against the use of pituitrin before the third stage. Roberts, on the other hand, has reported a series of 423 deliveries, in 14% of which, or 58 cases, intracranial hemorrhage developed, and in none of these was pituitrin used. In seven cases of my own, extending over a period of six months, pitruitrin was used in two cases. It may be that pituitrin given in too powerful doses may accentuate the normal physiological compression of the head, chiefly the rapidity with which the compression is brought about, and thus tend to increase the possibility of hemorrhage. But we must not give it when this is possible.

Is the hemorrhage due to some maternal condition? It is possible that some maternal toxemia may affect the fetal blood vessels in some way, making them more friable. Or it may be that the mother's diet, if inadequate in certain respects, may do the same thing and produce hemorrhages, a condition that has been shown experimentally in albino rats. However, probably toxemia plays only a minor part, since it is believed that even in the newborn of eclamptic mothers, the bad results often seen are the results of hasty deliveries rather than of a toxin absorbed from the mother.

Is this condition infectious, either transmissible from one baby to another in a nursery or from some of the nursing personnel to a baby? Some authorities believe that it is and that all these cases should be isolated. This of course does not fall in line with the statement that the chief cause is trauma. Let me, however, cite the case of one obstetrical nursery in which there occurred some twenty cases over a period of about six months. These cases were delivered by several different doctors so that the question of faulty technique may be left out. The ward was closed, renovated and since its reopening a year ago, no cases have occurred.

Is the condition due to an anesthetic? It has been shown that the bleeding and coagulation times are greater at birth by one and one and one half minutes respectively in cases delivered under nitrous oxide with an anesthesia of thirty minutes or over than in those delivered without any anesthetic. The same applies to ether. The importance of this does not, however, seem great, because the series reported was not great, 200 cases and because the bleeding and coagulation times were normal within 48 hours, and it is usually after this that the symptoms of hemorrhage arise. In a questionnaire that I, personally, sent out to some of the leading obstetricians of New England on this particular point, they replied, without exception, that they did not believe that anesthesia played any role in intracranial hemorrhage.

Is it perhaps due to a mechanical raising of the fetal blood pressure? It may be that the increased intrauterine tension compressing the entire body of the fetus through the amniotic fluid decreases the space in which the blood circulates and hence raises the pressure. This would account for hemorrhages occurring in other organs of the body than the brain. But the vessels in the cranium are the most apt to give way, because they are the ones most subject to trauma, and what is particularly important, we know that when the head is born, the increased intrauterine tension on the head is removed and the pressure within the cerebral vessels is increased. This is simply another way of saying that the quick expansion of the fetal skull following birth may be a causative factor although we know that it is nowhere near as important as the quick compression of the skull. We do know that it is a bad idea to leave the head born and the rest of the *foetus in utero* for any longer time than is necessary, because of the difference of the two pressures and the tendency of this difference in pressure to cause rupture of the cranial vessels.

Breech presentations with the sudden compression of the aftercoming head, perhaps in the wrong diameter, often result in hemorrhage. Prematurity is without doubt the greatest single predisposing factor. This is due to the fact that the blood vessels, the dura and the brain substance itself show increased fragility, due to lack of development. The combination of breech presentation and prematurity is particularly dangerous. Precipitate labor is also an important cause, due, without doubt, to the rapid compression of the fetal skull, the speed with which it is pushed through a not completely dilated cervix. Let me illustrate these last two factors with a case.

A primipara, 24 years of age, was under treatment for a preëclamptic condition, running a blood pressure of 170, and a large amount of albumin in the urine. She was wakened in the night by first pain and delivered herself normally in fifteen minutes. This infant, practically full time did well in spite of the precipitate delivery.. In her second pregnancy the same patient also ran albumin and a high blood pressure and at seven months was again in the hospital for treatment. Again at night she was wakened by the first pain and delivered herself in five minutes. This infant lived about one hour and died with symptoms suggestive of a large infratentorial tear with hemorrhage. Both of these were certainly precipitate labors, but it would seem that in the second case, the prematurity with its insufficient development of the blood vessels was a greater factor in the production of hemorrhage than the rapidity with which the fetal skull was compressed through the cervix.

Some authorities consider asphyxia as an important cause in the production of intracranial hemorrhage. Munro and Eustis a few years ago classified all hemorrhages as due to one of three things, trauma, asphyxia and the hemorrhagic diathesis. Asphyxia, from whatever cause, raises the pressure in the cerebral veins, in fact that is what it is, a venous congestion—and thus decreases the absorption of spinal fluids, which in turn causes a rise in intracranial pressure, which causes more venous congestion and thus we have formed a vicious circle. At some point in the circle, a vessel breaks and we have a hemorrhage resulting. In this way asphyxia may cause intracranial hemorrhage. However, at the present time, we are coming to look upon asphyxia rather as a result of the hemorrhage than as a cause, and the term asphyxia as used as a cause of death, should perhaps better be replaced by the term intracranial hemorrhage.

The hemorrhagic diathesis, i.e., the prolongation of the bleeding and coagulation times, in the newborn, must be considered as a predisposing factor, but not one of prime importance. It has been definitely shown in a long series of cases, proven by autopsy to have been intracranial hemorrhage, that the bleeding and coagulation times were prolonged in only a very small percentage.

Symptoms. The symptoms of this condition are not always the same. The most important single symptom is the cessation of normal nursing after it has once been established. There are many newborn that do not nurse well the first day or so, due to causes other than hemorrhage, but the newborn that nurses well for the first two or three days and then cannot be made to nurse is practically pathognomonic of intracranial hemorrhage.

As to the general attitude of the child, it may be either very restless and crying all the time with a shrill cry suggestive of meningitis or it may be very quiet and limp. If the hemorrhage be on the hemispheres the child is apt to cry, if it be tentorial, it is quiet, apparently either sleeping or comatose. As to its color, it may be pale if the hemorrhage is hemispheric or it may be cyanotic if the hemorrhage be tentorial. The pulse may be either slow or rapid from irritation or exhaustion respectively of the vagus nucleus. The temperature may be normal, subnormal or high. High temperatures may perhaps be explained by the fact that the infant has not taken a sufficient amount of fluid and has become dehydrated.

Difficulty with respiration is another frequent symptom. This may be fatal due to pressure on the respiratory centre, or if not so severe, is manifested by deep irregular respirations with periods of apnea. This results secondarily in pulmonary atalectasis, so that some authorities have gone so far as to state that in all robust infants showing atalectasis, this condition is always secondary to intracranial hemorrhage. This statement is perhaps too broad since other conditions such as a congenital heart lesion may result in atalectasis. In hemorrhages on the hemisphere the respiratory centre is affected late, if it be infratentorial it is affected early.

Bulging of the anterior fontanelle is not a constant symptom. In fact it is more often absent than present, as it is not found if the lesions are small or infratentorial. "Continual complaint" is a very good term to describe the restlessness of many of these infants in early stages before there is increased pressure. Continuous complaint in the newborn always means serious illness and frequently intracranial hemorrhage.

Blood in the spinal fluid also is important. Blood always means hemorrhage, excluding those cases where it comes from trauma from the needle. This is readily differentiated, however, since the blood will be in the first few drops only if it comes from trauma and the fluid will then flow clear, or repeated puncture a space higher will give clear fluid. All cases of intracranial hemorrhage do not show a bloody fluid. The fluid will be clear in supratentorial and hemispheric hemorrhages unless the hemorrhage be copious.

Dysphagia occurs, an inability to suck and a difficulty in swallowing. Finkelstein has pointed out that this occurs in cases of asphyxia due to intracranial hemorrhage but not in cases of as-

phyxia due to other causes. Yllpo has reported a rapid contraction in the extremities from pressure on the sternum.

Signs of cerebral irritation occur consisting of twitching of the hands and feet, nystagmus or even convulsions. A trained neurologist may at times be able to trace the gradual increase in the size of the hemorrhage from the progression of the symptoms from one nerve to another, but it must be remembered that the reflexes in the newborn are very unsatisfactory and really the examination of the various cranial nerves is not of great clinical importance. Irritation of the vasomotor centre may produce the pallor, a rise in blood pressure and dermatographism. Definite paresis or paralysis may occur later as a terminal symptom, usually in the lower extremities.

Vomiting is also quite a common symptom. I have seen one case that so closely simulated a pyloric stenosis that it was operated on and nothing found. This case showed marked peristaltic waves, projectile vomiting and the failure of anything to pass through the pylorus in three hours, as shown by the x-ray. The only thing in this case that was not typical of pyloric stenosis was the fact that the symptoms began a day or two after birth.

Hemorrhages may occur in other parts of the body other than within the cranium. These may be in the scalp as shown by external cephalhematomas in the various organs of the body, such as the adrenal, etc., where of course they are not demonstrable, or in the conjunctivae where they are not uncommonly noticed. Whether these are due primarily to the hemorrhagic diathesis or to a general increase in the blood pressure is a matter of opinion. They do not necessarily mean a severe intracranial hemorrhage inasmuch as they are seen in cases presenting no clinical symptoms of intracranial hemorrhage, nor are they necessarily present in cases of severe intracranial hemorrhage.

Death may occur very suddenly without previous symptoms indicative of intracranial hemorrhage. One case of my own was dead on the third day four hours after the appearance of the initial symptom. Cases have been reported where death was even more rapid than that.

Jaundice is rarely a symptom, although in some cases of jaundice prolongation of the bleeding and coagulation times is present.

External hemorrhage, as has been stated, is very rare as an accompanying symptom of intracranial hemorrhage. It is perfectly possible to have the two conditions together but it is so rare that it must be considered rather as a coincidence. This is shown in the following case:

Para 2. First baby stillborn from difficult delivery. Case was seen first when half way through labor, otherwise a Caesarean would probably have been advised. Inasmuch as the head did not engage after full dilatation and rupture of the membranes, internal podalic version was done with a great deal of difficulty and damage to the child. An obstetrical paralysis resulted in one arm. About four hours after delivery it was noticed that the child was showing symptoms of intracranial hemorrhage. Lumbar puncture was done and 20 c.c. mother's blood was given intramuscularly, with improvement of the symptoms. The patient insisted on going home at the end of one week. The following day there began to be bleeding from the navel, which was profuse and uncontrollable. A fairly large transfusion was given with resulting stopping of the umbilical hemorrhage. A cast had been applied because of the brachial injury. The pressure from this had caused considerable hemorrhage in the two pectoral regions, so great that the cast had to be removed and the blood evacuated. The child began to bleed later on two occasions requiring two more transfusions before the hemorrhagic tendency was finally controlled. In this case there were undoubtedly two definite conditions, true hemorrhagic disease of the newborn and the actual trauma from difficult delivery resulting in intracranial hemorrhage. No doubt in this case the hemorrhagic diathesis made the intracranial condition worse. This is not the usual story. Generally the hemorrhagic diathesis plays a small part in the production of intracranial hemorrhage.

Treatment. Treatment of this condition must be instituted early. It consists of two procedures, the giving of whole blood intramuscularly and the performance of lumbar puncture. Even though the hemorrhagic diathesis does not play a large role in the causation of this condition nevertheless the giving of whole blood tends to prevent further bleeding through increasing the coagulation power of the infant's blood and decreasing the bleeding time. It is a perfectly simple and safe procedure. It is not necessary to type, although if transfusion be given it might be safer inasmuch as it has been shown by Allen that 20% of the newborn are incompatible with the mother. This may be open to dispute. Personally I have never typed up to twelve days and have never seen reactions. In cases where its administration has seemed urgent, it has been my custom to use the mother's blood. In mild cases where perhaps the mother has noticed nothing abnormal, I have used the father in order not to upset the mother by letting her know that something was wrong. I believe that either may be used intramuscularly without ill effects. 20 c.c. is the minimum amount that should be used. Less than this amount it has been recently shown has no effect on the bleeding and coagulation times, while over 20 c.c. does immediately influence them.

The second procedure is the performance of lumbar puncture. The object of this is to relieve intracranial tension. It is not the hemorrhage, per se, that kills the infant, but the increased intracranial pressure, hence this should be relieved. Munro urges the use of a spinal manometer and the keeping of the pressure below a certain level. This of course is not available to all and really seems of small clinical importance. The main thing is to get the pressure lowered as soon as possible. Puncture may be repeated every six, twelve, or twenty-four

hours according to the symptoms. Objections have been raised to this procedure on the grounds that it may not be without ill effects and that it is not always an easy thing to do. It seems to me that its chief objection lies in the fact that jack-kniving of the baby, which is necessary in doing the puncture, is apt to cause increased pressure within the cranial vessels and hence an increase in the hemorrhage. All of these objections should not outweigh the advantages that may be gained from the procedure in the improvement of symptoms through the relief of intracranial pressure. Blanco and Paperini, South America, consider horse serum as the most active hemostatic agent and have used this intraspinally with and without 10% gelatin solution combined. This is not the generally accepted idea.

To ascertain the bleeding and coagulation times in cases of intracranial hemorrhage is not absolutely necessary. Our treatment is going to be the same regardless of how large or how small a part the hemorrhagic diathesis is playing. I do believe, however, that it is important that the fluid intake be kept up, either by gavage or by rectal, subcutaneous or intraperitoneal administration. In these infants, where they are nursing poorly, they are apt to become dehydrated rapidly.

I do not believe that in these cases of intracranial hemorrhage, transfusion should be done. It seems only reasonable that if the contents of the vascular system, which already has a leak in it, are increased, that the leak or hemorrhage is going to tend to increase. It is not a similar condition to that which exists following a severe hemorrhage or anemia, where increase in the amount of circulating fluid is desirable. We need in these cases of intracranial hemorrhage only the coagulating elements of the blood and these are usually obtained in amounts sufficient to prevent further bleeding by the injection of 20 c.c. of blood intramuscularly, without the risk of raising, even temporarily, the pressure within the vascular system.

Treatment is advisable even in the most serious cases. Often lumbar puncture may cause improvement where a fatal outcome seems assured.

Prevention. Our chief concern, even more important than treatment, is the prevention of these intracranial hemorrhages insofar as may be possible. Let us consider what we may do at the time of labor to prevent them. We must be careful in the application of forceps to have as nearly as possible a lateral application. Antero-posterior pressure will do everything that lateral compression does toward the production of hemorrhage and more quickly, in the tearing of the tentorium and of the veins emptying into the sinuses. It is a mistaken idea that the labor must be a difficult one or that there must be damage to the brain itself to produce an intracranial hemorrhage. Even if compression be made in the proper lateral diameter we must be careful of two things, that this compression be not too sudden nor too great, i. e., that the head be not compressed and drawn through a space obviously too small for it with such moulding as must of necessity cause stretching and folding over of the dura and the resultant tearing off of the veins where they enter the sinus or the tearing of the falx at its weakest point, where it diverges to form the tentorium. The tentorium is much more vulnerable than the dura and a sudden compression laterally will cause a tentorial tear without leaving any visible external signs on the head at birth. This compression may take place when the head is squeezed through a rigid undilated cervix or through a rigid vulvar ring. Therefore, we must not apply forceps until the cervix is completely dilated or at least until its remains are of such elasticity that they do not offer a mechanical obstruction. This might perhaps seem a foolish cautioning but that the indication that the cervix be fully dilated before the application of forceps is not always observed is certain. There is unquestionably a great deal of hurried obstetrics, due to the unwillingness of the doctor to sacrifice his time in an under paid branch of medicine and to the ignorant unwillingness of the patient to wait the necessary length of time. As far as obstruction from the vulvar ring is concerned it is certainly much more preferable to sacrifice this ring by the doing of an episiotomy than it is to stretch it gradually at the expense of the fetal skull. In my opinion more episiotomies should be done. They prevent deep lacerations with tearing of the muscles and they can be easily and completely repaired with integrity of all the component parts of the pelvic floor. There is one more obstruction through which the baby's head must pass on its way out and that is the bony outlet of the pelvis. It is not uncommon, occurring in about 7% of cases, to have the superior strait large enough to permit easy engagement and descent of the head only to have it arrested when it reaches the pelvic floor through the fact that the outlet is too small. This is the funnel pelvis, a transverse diameter of 8 cm. or less and an antero-posterior of 9 or less. This must be foreseen by mensuration before labor begins, otherwise what would appear at the end of labor to be an easy low forceps will develop into one in which so much compression with the forceps must be made that to get the fetal skull through the outlet may result in severe intracranial damage.

We must remember that, because of the differences in pressures it is unwise to leave the head out and the rest of the body in utero for any longer than is actually necessary. I think it is preferable to have pressure applied externally to the fundus as soon as the head is born both for this reason and also to prevent brachial

paralysis from injudicious pulling on the head.

We must remember that in attempting to protect the perineum in delivering the head between pains the amount of pressure made against the forehead pushing the head against the symphysis may be greater than we realize and may cause an antero-posterior compression of the head sufficient to cause tentorial laceration.

In the use of pituitrin, we must remember that it should not be used in too large doses; three or four minims is sufficient. It also must not be used if there is any bony obstruction either inlet or outlet, also it must be remembered that a rigid cervix or a rigid vulvar ring is just as much of an obstruction as the bony pelvis. If pituitrin is used to compress a head rapidly by pushing it through any obstruction it undoubtedly is a factor in the production of this condition. I do not personally believe that unless used in the presence of such contraindications or in too large doses that it is a factor in the production of intracranial hemorrhage.

We know that cases of hemorrhage have occurred in Caesarean sections. These may perhaps have been due to the fact that they occurred before the operation during the test of labor. It has also been suggested that they may have been due to pulling the head through too small an incision in the uterine muscle, a point for consideration by the surgeon.

In handling the after-coming head in breech presentations, we must remember that proper flexion of the head is very important, since extension tends to increase the likelihood of the occiput catching on the symphysis. This pushes the cerebellum upwards against the tentorium and causes laceration. Also the antero-posterior diameter of the head should engage in the oblique diameter of the pelvis as nearly as it does in vertex presentations. So it is that proper handling of the head from the outside is fully as important as the technique in delivering it from below and an assistant that understands the mechanism of labor should always be present at breech deliveries insofar as is possible.

We must try to spot the syphilitic patient early in pregnancy so that she may have the benefits of early treatment, since syphilis in the fetus tends to cause prematurity and in this way if not per se acts as a contributing factor. We must do everything possible to prevent premature labors, through the prevention of toxemias, improper habits, poor hygiene, etc., knowing that prematurity is the one big predisposing factor. Also in premature labors we must be even more careful to avoid traumatism from forceps and pituitrin. We must try to keep the membranes intact until full dilatation so as to avoid the rigid cervical ring and more frequently than in full-time labors resort to the episiotomy if the vulvar ring seems likely to offer any obstruction.

We must avoid all vigorous manipulations in attempting resuscitation particularly those swinging maneuvers in which lateral compression is made on the head or in which the baby is held upside down. We must remember that in most cases asphyxia is simply a symptom of some intracranial damage and that these manipulations tend to make the damage worse. We can at least learn from Potter that it is better to do nothing in the way of resuscitation than it is to do too much, and that the first and most important step is the clearing of all mucus, etc., from the air passages.

We must take cognizance of the work of Baumm, although it is not yet definitely accepted. He believes that in the repeated countings of the fetal heart rate, a tachycardia without a previous bradycardia means a threatened intracranial hemorrhage, and that a tachycardia following a previous bradycardia means that the hemorrhage has already occurred and that delivery is useless. If a tachycardia is followed by a bradycardia, delivery should at once be effected. Others believe that a bradycardia persisting during the intervals between several consecutive uterine contractions requires immediate interference.

In the application of forceps we must be sure of the degree of rotation of such as have been posterior to start with in order that the forceps be not applied in the antero-posterior diameter. Partially rotated or unrotated posteriors are probably best rotated by hand rather than by the Scanzoni as far as the probability of fetal damage is concerned. Version is always preferable for the unengaged head that must be delivered from below because of the high mortality of high forceps.

The following cases are appended with brief discussion:

Baby D. Born Aug. 4. First baby. Labor about six or seven hours. Delivery was normal. No pituitrin or forceps was used. Baby nursed fairly well the first twenty-four hours—then nursed normally for the next forty-eight hours. At 6 A. M. on the 7th of Aug. became limp. Had a shrill cry. Temp. 97.4. Would not nurse. At 9 A. M. nursed well and seemed bright and normal in every way. I saw the baby at 10 A. M. and was deceived by the fact that it seemed normal in every way. During the afternoon it again refused to nurse. At 6 P. M. it vomited blood. Transfusion was done and the baby grew progressively worse and died within an hour. I think the mistakes made in this case were that treatment should have been instituted earlier, that the transfusion may perhaps have aggravated the hemorrhage. Lumbar puncture should have been done and whole blood given intramuscularly instead of the transfusion. Undoubtedly there was an element of hemorrhagic diathesis in this case.

Baby B. First baby. Weight 6/7. Labor of average length. No forceps nor pituitrin used. Never nursed well during the first twenty-four hours and then passed bright red blood twice in the stools. Was immediately transfused from the father. Would not nurse for forty-eight hours after that, and was gavaged with breast milk and sterile water. Then suddenly began to nurse well and continued to do so throughout its stay in the hospital. Four oz. over

birthweight on the 13th day and at a year and a half normal in every respect.

Baby E. Second baby. Three hours labor. L. O. A. Normal delivery. No pituitrin or forceps used. Weight 9/10. Was normal in every way until the tenth day when it began to bleed from the cord. This was not controlled by intramuscular blood, so transfusion was done. Death occurred shortly after, the baby having failed very rapidly within an hour or two and showing all the signs of hemorrhage somewhere. Nursed well up to within a short time before death. Probably factor of trauma not present here. Seemed likely that hemorrhage may have occurred somewhere within the abdomen.

Baby G. First baby. Eight hour labor. Weight 6/7. L. O. A. Born Aug. 31. Three minims pituitrin used after complete dilatation. Easy low forceps with slight tear of fourchette. Baby perfectly normal for first forty-eight hours. Nursed well at 6 P. M. Vomited blood just before 10 P. M. feeding. Limp, pale, and did not cry well. Transfused from father within two hours. Died two hours after the transfusion. Felt that this was a case containing element of hemorrhagic diathesis, with perhaps slight intracranial hemorrhage. Think better treatment would have been lumbar puncture and injection of blood intramuscularly. Think condition made worse by the transfusion.

Baby EL. First baby. Weight 9/. Small dose of pituitrin used during the second stage and low forceps used. Baby nursed fairly well and at the end of twenty-four hours vomited blood. 20 c.c. mother's blood injected intramuscularly. Baby immediately and always thereafter nursed well. Three days later a hemorrhagic area appeared on the face, baby cried constantly and again vomited blood. Twenty-four hours later it again vomited blood and was dopey although it nursed well. Two days later a hemorrhagic area appeared on the back, and it passed blood by rectum. Whole blood was again given intramuscularly. No external bleeding after that. Baby discharged on the twelfth day normal in every way. This undoubtedly almost entirely a case of hemorrhagic diathesis.

Baby M. First baby. Born Aug. 7. First two days nursed well at times and at times did not. Was wakened with difficulty. Showed no other signs. Lumbar puncture was done with clear fluid. On third day began to bleed from the cord slightly. Given mother's blood intramuscularly, and this repeated on the following day because no improvement in the symptoms. From the fifth day on baby nursed well and was normal in every way. Birth weight 6/9. Discharged weight at 16 days 7/5. Pituitrin was used and low forceps on an O. L. A. Probably a small lesion with hemorrhagic diathesis as a contributing factor. Normal at two years.

Baby J. First baby. Four minims pituitrin given during second stage. Low forceps to an R. O. A. Nursed well first two days then would not. Limp and had shrill cry. On third, fourth, fifth and sixth day passed blood in stools. Lumbar puncture done with clear fluid. Twice given blood intramuscularly. From seventh day on nursed well and passed no blood. Birth weight 6/12. Discharge weight at 18 days 7/4. Probably small hemorrhage above tentorium and hemorrhagic diathesis.

Baby C. Second baby. First baby was still-born from operative delivery. Measurements were normal and patient was allowed to go into labor. When fully dilated was O. D. P. with floating head. Version performed with a great deal of difficulty in delivering the head. Baby resuscitated with great difficulty and made to cry but heart slowed down quickly when artificial respiration was stopped. Lumbar puncture and puncture of cisterna magna done and blood obtained. Lived about three hours. This was probably a massive hemorrhage from tear of the tentorium by pushing cerebellum up against it. Mistake made in that patient; Caesarean should have been employed.

Baby D. Second baby weight 5/8. About two weeks premature. Precipitate labor. Mother delivered herself. Preëclamptic toxemia. Cyanotic at birth and respirations affected. Lumbar puncture showed blood. Lived about two hours. This a case of tentorial tear with hemorrhage from rapid moulding of head through cervix plus factor of prematurity.

Baby BU. First baby. Seen in consultation. Did not nurse well. Five days old. Had repeated convulsions. Lumbar puncture done and bloody fluid obtained. Mother's blood given intramuscularly. Much improvement and discharged from hospital at normal time.

Baby S. Third baby. Case turned over for treatment by another physician. Mother gave history that injection, probably pituitrin had been given at onset of labor and that baby was born a half hour later. Baby had been taken off breast and did not eat well. Difficulty with respiration. Seen first at about two weeks. Lumbar puncture done. Contained old blood. Gradual improvement in respiratory symptoms. Normal at five weeks. A very good example of the misuse of pituitrin.

Baby X. First baby. Forceps delivery. Case turned over at three weeks for treatment. Lumbar puncture done and clear fluid obtained. Baby would not take nipple and was dopey. Had lagophthalmos and other paralyses of the fifth nerve. Gavaged. Gradual improvement of the paralysis and good gain in weight at end of two weeks. Example of untreated case that got by but with uncertain prognosis as to later sequelae.

I realize that in none of these cases have the bleeding or coagulation times been reported but it seems to me that these are only of academic interest, since the treatment is the same regardless.

There are certain sequelae arising from these cases of intracranial hemorrhage in the newborn and it is because of these that it is extremely important that we should all recognize the symptoms of this condition as early as possible and institute proper treatment. If these hemorrhages be massive, death may take place rapidly. Even the cases showing the most serious symptoms may however respond to early treatment. Little's disease, spastic paralysis, idiocy or feeblemindedness may result as after-effects in later years, as well as epilepsy. Hydrocephalus may also result if the lesions be in the proper place to obstruct the foramina.

It seems to me that this condition as a cause of death during the first week of life is not generally realized. It is interesting to note that during the years 1923 and 1924 in Manchester, out of 204 deaths recorded under one month, only two were marked as hemorrhage of the brain and six as hemorrhagic disease of the new-born, a percentage that is out of all ratio

to its real great primary importance. We know that it is the cause of death in nearly half the cases during the first two weeks and nearly 100,000 babies die in the United States under one month every year. We shall make no headway in our attempts to reduce the infant death rate under one year until the practitioner that is doing obstetrics takes an interest in, recognizes the symptoms of and adequately treats this condition of intracranial hemorrhage in the newborn.

Discussion

Dr. Donald G. McIvor, Concord: After hearing Dr. Burpee's most excellent paper on Intracranial Hemorrhage, there is little one can say in addition, but I would like to lay special emphasis on certain things that he has already pointed out.

As he has said, trauma is the greatest single factor in intra-cranial hemorrhage, therefore every obstetrician should do all in his power to avert trauma at the time of labor, I believe that forceps should be used with far greater caution, and much less frequently than is the custom of many doctors practising obstetrics today. The last two cases of intra-cranial hemorrhage I have seen were the result of instrumental delivery.

Episiotomy unquestionably should be done more often than is the custom with primiparae because of the rigid vulvar ring.

I also believe that injudicious administration of pituitrin is responsible for many intra-cranial hemorrhages.

Resuscitation should be done more carefully, and I believe anesthesia is a benefit rather than a menace—it tends to relax and therefore lessens the pressure.

And above all, I believe better ante-partum care is needed — more careful examinations should be made, more accurate measurements taken, the obstetrician should in this way, try to limit the number of hard labor cases, for here surely, an ounce of prevention is worth a pound of cure.

Prematurity could often be avoided if the patient has had the proper care. We must educate our public and urge our doctors to insist on the proper ante-partum care.

Every practitioner should be willing to give an unhurried delivery, and see that every care is given to the new-born, for the first few days are the vital days as far as the infant's future welfare is concerned.

As Dr. Burpee has said, there are many cases of intra-cranial hemorrhage that are not due to poor obstetrics, cases that cannot be prevented. And here we should stress two things, early recognition of the symptoms and prompt treatment—that is—the giving of the mother's or the father's blood intramuscularly, and the lumbar puncture, in the meantime maintaining the fluid intake.

The efficacy of the treatment of course, depends a great deal on the location of the hemorrhage, but the localization of the hemorrhage is subordinate to the estimation of the intracranial pressure. In any case of questionable symptoms, however, we should be prompt with the treatment and give the infant a chance.

Dr. Frederic P. Scribner, Manchester: I wish to congratulate Dr. Burpee for his work on this most excellent paper; he has covered this subject from every angle, and his work along this special line has succeeded in stimulating great interest among the physicians of our community in this subject about which too little is definitely known. I have had the pleasure of reading his entire paper, and so know about the individual cases, which he has not had time to report today. When these transactions are printed it will be well worth the time of us all to read what Dr. Burpee has reported about these different cases. The doctor is very strongly inclined to the theory of actual trauma as to the cause of the intra-cranial bleeding and undoubtedly this is very often the case, but I believe that we must consider hemorrhagic disease as a factor very often. We all know that in hemorrhagic disease, the most characteristic feature of the disease is a spontaneous and persistent tendency to hemorrhage which is often multiple in origin. The bleeding has been observed in the skin and subcutaneous tissue, from the nose and mouth, the conjunctiva, the mucous surface of the intestinal tract, the serosa of the pericardium, and peritoneal cavity, certain organs also at times show hemorrhages as the kidneys, adrenals, the thymus, the lungs and liver. If all these organs at times show signs of hemorrhage, why is it not reasonable to suppose that the bleeding may be taking place intra-cranially also for the same reason? In all these cases search should be made for evidences of bleeding elsewhere, such as chemical examinations for blood in the stools and urine. If autopsies were done on all these cases we might find evidences of hemorrhage in the other organs of the body as well as within the cranium. If these cases are due to trauma why do we have to wait two, three, and four days before seeing evidences of the hemorrhage? Why is it that in some of the most difficult and prolonged forceps deliveries, nothing abnormal is seen about the child afterwards, while as Dr. Burpee has stated in some very simple, easy, and apparently normal cases, signs of hemorrhage are apparent? I cannot help feeling that hemorrhagic disease plays a great part in causing this condition, in this type of case. I should like to hear from the men doing considerable blood work in regard to this question. The part that sepsis plays as a causative factor in hemorrhagic disease is apparently of great importance, for instance, Dr. Burpee's report about the nursery where there were several cases

previous to its being entirely renovated. Holt states that it is met with more often in institutions than in private practice, and many authorities believe that infection is the most important etiologic factor. As to treatment I believe Dr. Burpee has outlined all that the average doctor in a small community can do. Harvey Cushing states that intra-cranial hemorrhage in the new-born should be treated exactly the same as any any other traumatic intracranial hemorrhage in an adult, namely removal of the clot. He states that the new-born withstands the effects of a cranial, perhaps better than any other operation. The possibility of relief by means of surgery is limited to the first week or two, for once a cerebral scar has formed, nothing can help the condition. I sincerely hope there will be a spirited discussion of this paper as it is certainly a live question and one of the greatest interest to all of us, especially those doing obstetrics and caring for babies.

THE TREND OF NUTRITIONAL SCIENCE*

BY H. E. BARNARD, PH.D.

FOR fifty years and more experiment stations have developed and directed our agricultural activities. In their laboratories new fruits and grains have originated, scientific methods of fertilizing soils and cultivating crops have been worked out to increase production, and the breeding and feeding of animals has been developed so successfully that no modern farmer varies his plan of raising and maturing his beef or dairy cattle, his sheep or hogs from the methods devised by experts.

There is no guess work in the rationing of well-bred livestock. Every bushel of corn fed is expected to produce the maximum poundage in pork and the ration of a dairy cow is calculated to turn high protein feeds and carbohydrates into milk and butter fat with minimum waste in the process.

All the science of chemistry has been brought to the solution of the farmers' problems. Every forward step in nutrition has been promptly applied to animal feeding.

But no such scientific control has been applied to the feeding of the human family. Facts which have been recognized as necessary to the operation of a profitable dairy have as yet never been translated into terms applicable to the children and adults of the dairyman's family. That is why more than fifty per cent. of our school children are undernourished and why even in the country, child life is far less well cared for than the livestock in the farmyard.

This strange and illogical situation is usually explained by the statement that the result of the proper feeding of beef cattle or dairy cows is directly reflected in increased income while the feeding of the family around the dining table is a matter of personal preferences, convenience and cost.

If this is true it is high time experiment stations were established for the study of the nutrition of the higher animals known as human beings and the methods which have been so successful in the barn brought into the home.

*Read at the Annual Meeting of the New Hampshire Medical Society at New Castle, June, 1927.

Of course the splendid work which has been done in scores of Home Economics Departments, in modern hospital practice, and in children's clinics has contributed a great deal to our knowledge of the proper method of feeding children for growth and adults for their daily work.

Scores of books have been written by chemists, biologists, dietitians, doctors and experts in nutrition in which endless chapters have devoted thousands of pages to telling the story of food, its source, preparation and use. But much of the value of all the discussions is lost because no way has yet been devised for sifting facts from foolishness. Far more writers have tried to steer the nutritional habits of man without any intelligent knowledge of what they were talking about than have recognized authorities in the field.

For every McCollum, Sherman, or Rose, a dozen self-appointed publicists have turned to the profitable business of exploiting public health in terms of how to live on raw food, on meatless diets, on branny and indigestible breads, on the amazing regimes which, having proven interesting or helpful to a few devotees, are forthwith urged as the only true way to dietetic happiness.

And these books of delusions and fads have large sales. Men who go to recognized authorities when they need help in selecting a proper ration for a dairy cow follow the nutritional notions of writers who cannot distinguish between minerals and vitamins and buy pretty packages of simple salt mixtures with which to correct the inadequacies of their own diet. Women who find their bathroom scales tipping at higher readings as the years slow down metabolic processes turn to the columns of the beauty specialists for advice on the choice of foods.

Is there any balm in Gilead for these deluded seekers for girlish lines and youthful figures? Is sound advice on the use of food in the human family impossible to secure?

What methods can be developed which will make it relatively as easy to choose food for a child in the nursery as for a lamb in a sheepfold? And why is it not just as possible to feed

a man for maximum efficiency as it is a race horse? It should be. Theoretically it is. But human animals are not amenable to mass feeding when they have a chance to forage for themselves. And in the infinite variety of social conditions, home and business life, foods and methods of serving, as well as in the varying ages of those who gather around the table, a mass of circumstances arises to make feeding human beings with a full appreciation of the needs of every individual a very difficult thing to do.

Progress has been made, however, and the greatly increased use of milk which has come about through the splendid educational work of the National Dairy Council is giving millions of children a chance for vigorous growth and abundant health which was denied the children of a generation ago. The true character of the vitamins is still one of the mysteries of chemistry but the importance of these elusive activators of life processes is already so well appreciated that fruits and vegetables are more generally used than ever before and the basic foods which always will supply the energy essentials are now prepared in combinations which balance and supplement each other. It has even been suggested that the next step in regulating the character of the food supply will require foods to be labeled with their nutritional values just as packages are now required to declare the net weight of the contents and the name of the maker.

There are many reasons why such a requirement would be helpful. With the development of our knowledge of the vitamins has come an appreciation of the fact that foods which are apparently chemically identical have in truth very different nutritional values. Butter made in June is rich in the growth promoting vitamins. Butter churned in January is just as rich in butter fat but far less potent in fat soluble A. Bread made with the old flour and water formulas looks very like the modern loaf which is rich in the lime, phosphates, proteins and vitamins of milk. But bread rich in milk solids is almost a complete food while the bread made with lean formulas is quite inadequate in its calcium, phosphorus and protein essentials.

If butter were labeled, "Made in June," or "Made in the Winter Months," and if bread declared on the label, "This bread contains in one pound 1,300 calories of energy producing food of which 200 calories are furnished by milk," the consumer would be able to choose his bread and butter with some assurance that he was getting an adequate ration.

But too great responsibilities cannot be placed on labels. Even when they tell the truth they usually speak softly. Sometimes they are read. More often they are mere decorations on the package.

There is, however, another way by which the importance of good food may be brought home to every family. That way is via the family doctor, the family dentist, and the teacher in the school. But one difficulty stands in the road. That is the difficulty of providing these three servants of the family with sound nutritional information. The medical profession, and the dental profession as well, has never specialized in the field of nutrition. The chemistry of food, digestion and assimilation is a very modern science. The teachings of even a few years ago are inadequate today. And unless in the midst of a busy professional life our doctors and dentists can find time to give serious thought to every new development in physiological and biological chemistry they cannot keep up with the newer knowledge of nutrition which the experts in that field are enriching month by month with the contributions from their laboratories.

It is fortunate that the technical journals of these professions which are so closely related to nutritional science are edited by men who realize the need of their readers for the latest scientific information. It is fortunate too, that in the development of modern science research laboratories have become an important tool of industry so that today much of the best work in fundamental research is carried on apart from the laboratory of the university and in direct contact with industry itself.

I have referred to the excellent work of the National Dairy Council. A similar service to the cause of adequate nutrition has been rendered by the orange growers who have made possible the work which has so definitely established the importance of orange juice in supplemental feeding.

The canning industry, through its researches, has shown the high vitamin potency of the canned foods prepared out of contact with oxygen and developed processes for packing products which conserve every nutritional factor.

The packing industry has made excellent progress through its Institute in studying the nutritive value of those portions of the animal body which but a few years ago were rated as cheap and second grade in quality and food value. And so it is that the glandular organs, once largely discarded, are now recognized as most important animal foods. "The stone which the builders rejected is become the head of the corner."

In my own industry, whose chief concern is the baking of bread, rapid progress has been made. In developing formulas for baked products which insure the present generation of bread eaters a more satisfactory diet than that enjoyed by their fathers and which will contribute largely in molding the boys and girls of today into stalwarts to whom we can safely intrust our hopes for the future, the baker is stepping outside the limitations imposed by centuries of craftsmanship and is taking his place

as an important worker in the public health field. The old flour, yeast, salt and water formulas are now rarely used, and the baker whose bread is best appreciated, is using larger and larger percentages of milk solids and so incorporating in his loaf lime and phosphates, vitamins and supplemental proteins, and making a bread which more nearly approaches the ideal food than any other product save milk itself.

In studying the trend of nutritional science it has been interesting to note the progress the food industries have made, not only in the development of better products but in the appreciation of the responsibilities placed upon them as the manufacturers of the food which furnishes the energy to do the work of the world. Nutrition, to the leaders in these industries, is no longer a hodge-podge of fats, carbohydrates, proteins and mineral salts, or a miscellaneous assortment of empirical rules.

The real science of nutrition has progressed beyond the stage where assertions are facts and dietaries are now based on proven knowledge rather than on ancient notions. The work of Atwater, Voit, Chittenden, Langworthy, Wiley and many other investigators during the later years of the last century contributed much to our information concerning nutrition. Hundreds, yes thousands of investigators have made the mysterious vitamins well known to us in the last decade. And yet their work is hardly started. We dare not prophesy what the end will be.

In the meantime, while chemists are searching for Vitamins X, Y, & Z and re-interpreting the results of the earlier investigations of Vitamins A, B, & C, a new interest is being shown in the mineral content of our foods. Some centuries ago when chemists first searched out the mysteries of matter they found that bones and teeth contained large amounts of mineral matter which was not consumed by fire. That mineral substance or ash was largely calcium and phosphorus. And it was as easy as it was natural to reason that the building of bone and tooth structure was determined by the nature of the materials used as food. Foods rich in lime and phosphates made strong bone, it was observed. And conversely foods which did not contain an abundance of these elements did not and so were set down as inadequate foods.

In the course of time the dental profession and the medical profession as well began to think of body building foods in terms of their mineral constituents. Some hard-working chemist assayed a human body and when he summed up his totals he found that man was a chemical compound made up of carbon, hydrogen, oxygen, nitrogen, iron, calcium, potassium, phosphorus, silicon, flourine and many other elements. And with this table of contents before him, it was as easy as it was natural to deduce the fact that since the body is but the sum total of the food which made it a food supply which does not furnish the chemicals required to build a sturdy framework and clothe it with living flesh, is inadequate and unfit.

Then came the deluge. Our teeth decayed because our food contained too little lime, our legs bowed from the same cause, every form of disease crept upon us because we were eating foods low in iron, in iodin, in one or many or all of the vital elements of normal life as the doctrinaires so gravely announced.

And another group of investigators, sorting out their food tables, noticed that some foods had an acid reaction while others were basic. They arranged them accordingly and hung above each table the warning signs "thou shalt" and "thou shalt not."

Tomorrow some other obvious fact about our food will be separated from its fellows, driven into a corner, tight-walled against the entry of common sense, and another food cult will spring into being, convinced that its teachings, and they alone, will save the long suffering world from its dietetic ills.

Of course, there is some fact behind the notions which have been so interwoven into our nutritional life that it takes courage to approach a dinner table after reading the dietetic advice printed in newspaper columns or listening to a fervid oration on the virtues of raw carrots in delaying the advance of old age.

There are elements of truth in all the theories. But the sound scientific work of the hundreds of real chemists and biologists is taken at no greater value than the amazing nonsense hashed together by self-appointed apostles of the biologic life. Lime is necessary to sound tooth structure, but more than lime must be provided in order that lime is utilized. Eating chalk will not insure sound teeth to an unborn baby. But it seems more and more certain that the use of foods which are rich in lime and at the same time the use of vitamin-potent foods will equip the developing unborn child with such strong rudimentary teeth that in later years he will have perfect teeth.

And in the same way most of the observations of the large group which would make life a nightmare of raw foods, or meatless meals, may be taken to pieces and reorganized on a sound basis of scientific fact. The fact that the body is composed of 17 or 70 chemical elements is no reason why our breakfasts should always be grapefruit instead of cantaloupe because it is rich in iron. Nor is the high vitamin content of cabbages any sound argument for our cultivating the dietary habits of a guinea pig.

Through many years of careful supervision of the food supply of hospital patients, certain definite dietetic rules have been set up. Many of the standard diets have behind them the

sound observation of hundreds of trained dietitians. But in the light of our present knowledge that we really know little about the chemistry of nutrition and our growing fear that much of the things we do know is untrue, is it not time to revise our dietaries, not that they may be wrong but rather that perhaps they might be made less inflexible?

It is but a few years ago that starch or sugar was impossible in the food of a diabetic. What is the practice today? Which of us is to determine whether a low or high protein diet is most desirable? What dietitian whose knowledge of foods is modern rather than that of the literature of even five years ago will insist that whole wheat bread is the only good bread for her patients? And who among you would throw the first stone at a piece of good apple pie or a slice of simple cake as a suitable food for grammar school Johnny?

One of the the problems which most frequently comes to the physician for solution is that of feeding a satisfactory diet to patients who for real or fancied reasons wish to reduce. During recent years two things have contributed to the desire for less fat, one the fact that as middle age approaches it is desirable to avoid overweight, the other the styles which have dictated slender lines for the human form divine. We can safely leave the problems of obesity in the hands of our physician but the matter of changing styles must be handled differently.

When potatoes are tabooed by every young girl and most of their mothers, when candies have lost their lure and a hearty meal is shunned as an ungodly temptation to mortal flesh it is reassuring to know that the organized club women of America have stopped in the midst of their varied activities to sound a note of alarm against unwise dieting. If any word of warning will lead us back to paths of nutritional sanity, away from the strange styles which make pernicious anemia a desirable attribute of feminine loveliness, out from under the influence of styles which have put Venus di Milo with her normal curves behind the scenes and made straight lines the lines of grace and beauty it is the resolution which was adopted by the General Federation of Women's Clubs at its last Biennial Convention.

The resolution which offers the first real opportunity for a counter attack on the amylophobia which has so affected millions of people reads in part as follows:

Whereas, reducing body weight has become a national practice, and

Whereas, many women and girls have injured their health by reducing nostrums and wrong and injurious methods of dieting, and by bringing themselves below their normal healthy weight, while others are dangerously overweight;

Therefore, Be It Resolved by the General Federation of Women's Clubs in convention assembled, that we urge the women of America not to imperil their health and that of future generations by reducing methods other than those advocated by reliable physicians.

The effect this admirable resolution may have on generations yet to come cannot be estimated. Its value today will, we trust, soon be determined by the remodeling of our fashion plates and pages and the adoption of new standards of health and beauty that are not based on fleshless forms nor shrunken figures. A new movement was started by the Federation which will not only reconstruct the nutritional notions of three million mothers and home-makers but build strong bodies to do the work of the world.

But the adoption of resolutions which recognize sound facts and suggest adequate remedies for unsound conditions will make but little progress towards the goal to which they are directed unless public opinion is also similarly influenced. Public opinion does not develop spontaneously; it is created. And its quality is determined by its parentage. The parentage of the effort to put substantial meals on our breakfast and dinner tables that every underweight person may get all the calories he needs and high-school girls and young women may build up reserve supplies of energy and enjoy abounding vitality is blue blooded. No organization in America holds a greater potential power for good than the General Federation of Women's Clubs. It reaches into every home in which thinking women live and plan and work for the betterment of themselves, their children and the society of which they are an influential part.

And yet many other agencies which influence public opinion will have to be brought into action before the deep-seated idea that underweight is conducive to health is uprooted. The medical profession, dietitians, nurses and other groups which direct nutritional habits are fully aware of the evils of malnutrition. They know that work requires energy foods and that the amount of work the human engine can do is measured directly by the fuel burned or metabolized into action. They know that the human animal can no more be strong and healthy on a limited diet than any other animal. They teach the need of a well chosen diet, balanced as to its protein, fat, carbohydrate, mineral and vitamin content and amply sufficient to energize the body for its daily work requirements, and to store up as well ample reserves against unusual needs.

But so much has been said and written about the dangers of obesity and "digging one's grave with the teeth" that half the joy of eating is destroyed by the necessity of counting calories. Yet except in special cases normal appetites are the best determinators of the kind and amount of food required. So the too common practice of consulting the beauty columns of the morning paper for advice on how to reduce, how to

keep thin, how to live long and how to be happy is as unnecessary as it is unwise.

If one has either an inherited or acquired tendency to overweight the condtition must be corrected. But it is just as dangerous to self-prescribe remedies for pathological conditions of obesity as it is to attempt to regulate the functions of heart or kidneys without expert assistance.

The adoption of reducing methods which are not advocated by reliable physicians is therefore most properly considered unwise by the club women. If the editors of daily papers and magazines would come to the same conclusion and put their departments of health and nutrition in the hands of competent persons the progress of the movement for normal weigh would be rapid.

If the facts of nutrition were not well known, if there were any real differences of opinion as to just what food does and how it does it, if the chemistry of the human body were different from the chemistry of the college laboratory, there might be some excuse for the too common acceptance of dangerous and untrue theories of diet. But the schools of nutrition which are the widest apart in their ideas, as for instance the vegetarians and those who find no evil in a good steak, all recognize the necessity for an ample diet in which the food essentials are well balanced and properly combined.

If the action of the General Federation of Women's Clubs in urging the women of America to take counsel of recognized authorities in matters affecting their health and the welfare of the race is followed by similar intelligent efforts to bring a close to this self-imposed famine period; and if the discussion of nutrition and the diet is left to those who know what they are talking about we shall soon see fewer anemic and underfed persons and make real progress in the effort to conquer malnutrition.

Mother Nature led us by the hand through countless generations. In the last few years we have come to doubt the wisdom of the instincts which brought us so well through all our changes from the one celled atom buried in primordial ooze to the splendid human beings who so fiercely denied the Darwinian Doctrine in a Tennessee courtroom. Is this wise? It is not better, perhaps, to seek to interpret them more adequately? In the words of Dr. Lafayette B. Mendel, "the science of nutrition is in the midst of a continual evolution of facts and development of truth. For the present, therefore, we should 'first get the facts.'"

Discussion

Frederic P. Lord, M.D.: After securing an expert to discuss Dr. Barnard's paper, the program committee looked for the nearest layman they could find in this body, the only professional anatomist in the Society.

I thoroughly agree with Dr. Barnard that we fail to appreciate the value of accurate knowledge of nutritional science. Animals do better than we, for they, as a rule, confine their diet to what is good for them. We are continually being tempted by all sorts of delectable things to eat, largely of the sweet variety—a fact easily seen if we examine the display of any stand that purveys to the automobilist. I remember when I was school physician, arranging for an exhibition by a "Health Clown" to the school children to be held at 11:30 A. M. in the local moving-picture hall. One of the teachers on arriving with her pupils at that hour just before lunch, decided to buy herself a bag of popcorn, and who can blame the scholars if they followed suit? Drop into a students' dining-room and watch them consume a dinner without conversation in ten minutes, or be yourself served at any first-class hotel and notice how as your last mouthful from the plate is taken the waitress removes the empty and substitutes a full plate—the next course. There is no appreciation of the fact that one of the elements that is needed in proper nutrition is lack of haste while eating.

I recently discovered in a well-known monthly magazine seen on the shelves of every well-appointed club, and having a circulation, I am sure, into the hundred thousands, an article containing the most up-to-date scientific information on nutrition. Form it I culled the following bits of interest:

"In one (*person*) the outcome of acidity (*an acid condition in the body*) may be appendicitis, in another, tonsilitis, and in a third colitis. But all the symptoms may be traced back to the same cause—a breaking down of the alkaline balance of the body."

It was suggested that one eat oranges with the white rind left on.

I learned that large prunes are acid-forming, while small prunes are alkali-forming, foods; that rhubarb or cranberries should be eaten without sugar; that not more than three eggs with their whites should be eaten in one week; that starch and tomatoes should not be taken at the same time into the mouth, so I can have no more macaroni with tomato-sauce. I must not eat milk or sugar with my cereal, and can have no potato, bread or milk with my meat; I must eat my dried fruits uncooked, and nuts are better food than meat or eggs. And finally I am to eat 20 per cent. of acid-forming and 80 per cent. of alkali-forming foods—the list being given in this article. Most of this scientific nutritional knowledge is accredited to the "Defensive Diet League of America."

Although it is not always the case I must

state that I believe the public is not always inclined to have faith in the results of the "researches" of many industrial food concerns, for the public feels that the sign of the dollar is hung upon the walls of many such laboratories.

It also seems to the speaker that often too early publicity is given to many scientific discoveries of a medical nature, for he has noticed in his experience that many of these discoveries have turned out not to be such. It would seem that in the case of vitamins some commercial concerns try to convince the possible consumer that is it best to use their products on the same line of reasoning as that used by the man who thought that if one cathartic pill was good, ten pills would be ten times as good.

I think that doctors in general are not well informed in regard to nutritional science, but that they badly need correct and not too technical data. I wonder if one might not have, as we now have the Council on Physical Therapy, a Council on Nutritional Therapy, instituted for the purpose of properly sifting out the chaff and presenting the good wheat to our Medical profession.

Let us try in this matter to avoid emotional thinking, and rather try to ascertain facts upon which we base our judgments after careful consideration.

CHARLES D. HOWARD: I take it that a reason why I have been invited to discuss this most interesting address is because my official connection presupposes some familiarity with the science of nutrition. As to that, I wish to point out that such time as I can devote to foods is pretty fully taken up with the analytical and inspectional aspects.

As my predecessor, Dr. Barnard was with the State Board of Health from the establishment of the State Laboratory, in 1901, up to 1905, and in this position he did a fine piece of pioneering in initiating our present work of food inspection. During the War he rendered distinguished service as food administrator for the State of Indiana, being responsible for his State for the erection of those gigantic signs such as you will remember as having long decorated our public squares, and which read: "Save Food. It Will Help to Win the War."

I would not have it supposed that, having joined the forces of the American Bakers' Association, Dr. Barnard has since reversed himself through any endeavor to stimulate any wasteful or unnecessary consumption of food. Those of us who know him know that he would be one of the last to circulate any unsound trade propaganda, and that whatever he has said today is an expression of sincere conviction founded upon the most painstaking study and investigation.

I have however listened in vain to hear him, as a loyal New Englander, make any reference to his famous plea for pie three times a day. Likewise I have also been a bit disappointed not to hear any allusion at this time to his advocacy of the "fourth meal," by which he argues that in certain cases, particularly those of children, nutrition is favored by more frequent feeding—an argument the soundness of which I think is recognized by modern dietitians.

As bearing upon my own connection with the subject of nutrition, something was said in favor of a plan to require manufacturers to label their foods with a statement concerning the amount of nutrition contained in the package. While this is fine in theory, in practice I see objections to such a plan, such objection being that in the present state of our analytical methods, manufacturers could, as they are already doing to some extent, make all kinds of exaggerative claims, which it would be practically impossible for the inspection chemist to refute.

On the old-fashioned basis of expression in terms of calories, it might be a simple enough proposition. We know, for example, that the soft drink makers are arguing the value of the use of carbonated beverages in hospitals, which is sound enough so far as the dietetic virtue of carbon dioxide in palatable drinks goes, but when they try to place this upon a calorific basis, we know this is referable simply to the sugar content.

But when it comes to expression of nutritive value on the basis of vitamines, the food inspection chemist is distinctly up against it, as will be appreciated when it is understood that every such test must be based, as at present, upon an elaborately adjusted and controlled white rat-feeding experiment, conducted over some three or four months, the result being that by the time the "analysis" is completed, the stuff is likely to be off the market, or the manufacturer has changed his formula.

Recently we encountered a chocolate confec-

tion for which it was claimed that each package contained the vitamin equivalent of four yeast cakes. Who shall say that the manufacturer was guilty of misrepresentation? Again, we recently notified the manufacturers of a certain brand of oleomargarine based upon cocoanut fat that the legend on the package, "Contains vitamin food elements necessary to health and growth" was unwarranted, and in this case the manufacturers rather unexpectedly capitulated by replying that while they felt they were correct in the claim, still, if we objected, they would omit it in the future.

Dr. Barnard has borne down rather heavily, and justifiably so, upon the deluded female members of the human genus who are seeking beauty of figure through the starvation method. This touches a present hobby of mine, and one I cannot resist referring to, because the host of alleged fat-reducing nostrums now being offered to women at fabulous prices are classable as cosmetics. As you are probably well aware by this time, it is my contention that there should be laws prohibiting the making of these lying and preposterous claims, just as there has already been for years in the case of patent medicines. It seems to me a most incongruous situation whereby the sale of foods and drugs is subject to regulatory control while the several hundred million dollars worth of chemicals as annually sold for beautifying purposes goes scott-free of any official scrutiny.

In this connection I recall particularly the case of a nostrum sold under the name of Dr. Blank's Soap, extensively advertised as a flesh-reducer in some of the very highest class periodicals catering to women readers. Although we could not find it to be essentially anything other than just soap, yet it was confidently claimed for this preparation that its use would not only remove flesh but that in doing so it exerted a selective action. That is, if the exigencies of the case called for the chiselling off of a too rotund chin, or a paring down of hips inclined to an excessive breadth of beam, it would do just this, while leaving the other contours of the figure unaltered.

A long time ago some one aptly referred to bread as "the staff of life." A point I would like to bring home to you is that thanks to the scientific work of the men now behind the American Bakers' Association, the modern commercially baked loaf is not only a much more palatable but a generally better product than the average housewife is able to turn out.

FALLACY CONCERNING THE THERAPEUTIC VALUE OF SO-CALLED RADIOACTIVE SPRING WATERS

The public avidly swallows the claims advanced for new or novel methods of cure. Prominent amongst these in recent years is the application of the emanations from radioactive substances, a method of treatment of recognized legitimacy where substantial radioactivity is provided. A popular fallacy in this connection, much exploited of late, concerns those spring waters for which a claim of radioactivity is made. Such claims may be put down as being practically always inherently deceptive, not because radioactivity may not exist but because the degree of such is so slight as to be incapable of imparting any possible benefit.

Every natural water is more or less radioactive, and therefore the recognition of the presence of a small amount of radioactivity does not set any given water apart from any other natural water. Nevertheless, the radioactivity as detected in some spring waters "has been seized upon as something to talk about and advertise as a remarkable and unique property of waters which are no more unique in their radioactivity than they are in their wetness."

As a result of a large number of examinations made by the U. S. Bureau of Chemistry, this department concludes that shippers of spring waters are not justified in making statements on their labels which could induce prospective customers to purchase such waters because of this property. "The largest radioactivity of a temporary nature was found in a water from a warm spring in Massachusetts. Permanent radioactivity was found in greatest measure in a deep well in Northern Ohio. To obtain the daily dose recognized as a minimum, the patient would have to consume 2810 gallons of the warm spring water or 1957 gallons for the Ohio well."

There has recently been brought to our attention in this connection a money-extracting scheme said to be now exploited by the Radium Ore Company of San Francisco, but which device has apparently not as yet penetrated to this section. This device, sold under the name of "Revigator", consists of a jug the lining of which is claimed to impart radioactivity to any water stored therein. It is safe to conclude that if such lining possessed the power claimed in a degree to be of any value, the cost of these jugs would necessarily be far beyond the means of most individuals.—"*Health.*"—*New Hampshire Board of Health.*

DEATHS AND MARRIAGES IN NEW HAMPSHIRE

It is reported that in Concord, New Hampshire, there were fewer deaths and more marriages and births last year than in the preceding year. Deaths total 473, a decrease of 82 from 1926. There were 252 marriages, an increase of 28 over the preceding year. There were 171 births, an increase of 19 over 1926.

MEDICAL PROGRESS

PROGRESS IN GASTROENTEROLOGY FOR 1927

BY A. E. AUSTIN, M.D.

THE efforts of investigators have been directed to a review of the older methods of diagnosis, the adoption of new methods and a resumé of the results of operative intervention.

They comprise both laboratory methods and clinical observations and the results of Roentgenological examinations which seem to be a great bone of contention.

VALUE OF RADIOLOGY OF GALL-BLADDER, DUODENUM AND APPENDIX

Grebe[1] questions the dictum that failing gall-bladder shadows, after absorption of the contrast material, necessarily mean gall-bladder disease and subjects the matter to a careful review in 382 cases where the apparent diagnosis was disease of that organ.

These cases included all forms of disease of the biliary passages and bladder such as cholecystitis, cholelithiasis, empyema and cancer.

It was found that many patients with upper abdominal disease who were operated had shown no shadow of the gall-bladder up to 16 hours after the contrast material was taken yet the operation showed no participation of the gall-bladder in the pathological process so that the author attributes but little value to the presence or absence of the shadow in differential diagnosis of upper abdominal lesions.

The detection of stones is another matter but stones may be present and still not be the cause of the patient's difficulty. The author's conclusion is that the value of this method is not in the absence or faintness of the shadow but in the recognition of a well marked shadow, apparent 16 hours after ingestion of the dye and disappearing in the next 6 hours. This indicates a healthy gall-bladder and, apart from the detection of stones, is the only positive feature on which one may depend.

In 84 operated cases where the dye was given intravenously, the shadow was very faint or absent in 44: of these 44, fifteen had a diseased gall-bladder and 29 a normal organ. Of the remaining 40 with a good shadow, 16 had stones and in 24 the symptoms were shown to be due to some other lesion in the upper abdomen.

Eimer's[2] attention was called to the incidence of reflex peristalsis in the duodenum by which the contrast material under the fluoroscope is seen to reach the duodeno-jejunal junction, then pause and retrace its way to the duodenal bulb. As far as the observer could see, this does not reënter the stomach but again begins its way toward the jejunum; this may repeat itself six to twenty times before that portion of the contrast material makes its way into the jejunum.

The author conducted a series of observations on 17 patients, in whom this phenomenon occurred, in order to learn whether it had any diagnostic value. In no instance was there found any evideince of ulcer, (occult blood, etc.); the symptoms of which the patient complained were largely of a neurotic character.

Two individuals, however, for want of a definite diagnosis had laparotomies performed with the following results: the first had a cholelithiasis with adhesions of the gall-bladder to the duodenum but there was no disease of the gut itself and not the slightest evidence of stenosis; the second showed no pathology of the duodenum, gall-bladder or pancreas.

His conclusions are that this phenomenon may be due to disease of adjacent organs, or in the most of the cases is due to a purely functional disturbance of duodenal peristalsis dependent on an increased activity of the vegetative nervous system.

Robineau and Gally[3] have made a careful study of the symptoms and radiology of duodenal diverticula; their series includes 11 cases who came to the hospital with digestive symptoms; many of these individuals had undoubtedly had this abnormality for many years without any functional disturbance. When digestive disturbances begin, they are very mild and continue for years before reaching such an acute stage that the sufferer comes to the clinic for relief. It is very essential when the diverticulum is found, not to overlook a concomitant ulcer of the duodenum or stomach: pancreatitis of the chronic variety may be present at the same time.

The symptoms simulate those of duodenal ulcer, late pain, food relief, early morning vomiting, and blood either macroscopic or occult. In the original there is a detailed history of the 11 cases with radiograms. The authors' conclusions are that medical treatment is of little value and only a surgical operation can give the sufferer permanent relief.

Czepa[4] has endeavored to clear up the confusion reigning as to the significance of the filling of the appendix during the radiological examination of the intestinal tract. In order to facilitate the filling of the appendix, the author has mixed Epsom salts with the contrast material and found that, in those cases, where the appendix was not immediately visible when the material reached the colon, under the influence of the salts, in many of the individuals, the appendix was filled in from 8 to 24 hours after the ingestion; some required 48 hours to accomplish the same result. When under these conditions the appendix does not fill, Czepa repeats the

examination, and, if two failures occur, regards this as positive proof that the appendix is pathological. Of 21 cases diagnosed upon this proof, operation showed its accuracy in every instance.

When this filled appendix does not change its position, either spontaneously or after manipulation, it is adherent. When the organ remains filled an abnormally long time, that is, as long as 8 days after the cecum is free from the contrast material, it can be regarded as pathological.

Baumel[5] recognizes a chronic appendicitis and pleads for the more general use of radiology in the detection of this condition. As the symptoms of this disease are always vague and the diagnosis largely based on tenderness over McBurney's point which in itself is dependent on the sensitiveness of the patient, a personal equation, the detection of this condition other than by means of the radiogram, is founded on sand.

The results of the radiological examination according to the author are positive; the symptoms which would lead one to employ an X-ray examination for the verification of a diagnosis of chronic appendicitis, are a painful sensation in the right lower quadrant, 4 to 6 hours after eating, constipation more or less constant with feces containing scybalae covered with a glairy mucus, a moderate emaciation, eructations and pyrosis.

The radiological confirmation rests largely on the invisibility of the appendix 8 to 10 hours after the barium has reached the cecum and tenderness of the latter or, when visible, the fixity of the appendix with tenderness to pressure over same.

GALL-BLADDER DRAINAGE

Whether the gall-bladder can be drained by the use of the duodenal tube is still under discussion, many insisting that what is procured by this method is a mixed hepatic and gall-bladder bile.

Strauss[6], however, in 50 cases of various gall-bladder and biliary passage diseases, has employed the method of Lyon-Meltzer for gall-bladder drainage, using the duodenal tube while the patient is fasting and injecting from 50-80 C.C. of a 15% solution of magnesium sulphate solution and later 40-50 C.C. of the same solution, if, after waiting a short time, thick tenacious bile (gall-bladder bile?) cannot be obtained from the duodenum.

In a period of 3 hours 300-500 C.C. of bile can usually be extracted. The results of this treatment have been very favorable; fever and jaundice cleared up much more quickly than under ordinary methods of treatment and even where stones have been present in the gall-bladder, patients have improved objectively.

In one case, a man too old and feeble to undergo a cholecystectomy, three stones were passed after a biliary passage drainage. The author declares that even if a cholecystectomy is chosen, a preliminary drainage of the tract is advisable to reduce the mass of bacteria usually present.

FRACTIONAL ANALYSIS OF GASTRIC AND DUODENAL CONTENTS

Markoff[7] calls attention to the reduction of the acid values of the stomach by the reflux of the duodenal contents into it, thus invalidating the factors for acidity obtained by removing the gastric contents alone. To determine approximately the value of this variation, he passed a duodenal sound through the pylorus and after assurance that the olive is in the duodenum (alkaline reaction of content, presence of bile and fluoroscope), he passed a second Rehfuss tube into the stomach and then let the patient drink a mixture of alcohol, sugar and water; every 10-15 minutes a portion is removed from the stomach by suction while the duodenal content pours into another vessel. These fluids are separately examined and from this, the following conclusions were reached; on account of the partial neutralization of the gastric contents by the duodenal, the total chlorine, both in the form of the acid and the neutral, must be determined. As the duodenal juice also contains chlorine, its reflux into the stomach, increases the amount of that element in the gastric juice. The hydrochloric acid of the stomach loses by this means on an average a fairly constant amount of acidity equivalent to 6-14 C.C. of decinormal sodium hydroxide solution in 100 C.C.

RELATION OF GASTRIC SECRETION TO CHRONIC APPENDICITIS AND CHOLECYSTITIS

Guequetschkori[8] after enumerating the findings of many surgeons, who, when operating for gastric and duodenal ulcers, find the appendix diseased, reverses the process and before and after appendectomy, analyses the gastric secretion to determine the possible association and causation of ulcer by appendicitis. He employed the Rehfuss tube and examined 4 patients while fasting and after the test breakfast; the second examination took place 3 weeks after the appendectomy.

The results were a constant hypersecretion before the operation while in three of the four there was a return of gastric acid values to normal after the appendix was removed. With these few cases, he is unwilling to predicate that a chronic appendicitis, by increasing the gastric acid values predisposes to gastric and duodenal ulcer but advises a further investigation of this subject.

Hechtmann[9] examined 97 patients with cholecystitis or cholelithiasis, many of whom were operated, and found that in the early stages of the disease, gastric hypersecretion predominated but in 57 cases where the disease had lasted 5 years or more, the acidity was reduced even to zero.

Attempts were also made to determine the activity of the duodenal juice in gall-bladder af-

fections. In 24 cases out of 29 thus tested, there was marked increase in trypsin which proved the best test of pancreatic function. The detection of its presence in the stool has absolutely no value as a means of diagnosis.

The excess of bilirubin in the blood was also investigated and it was found that this always occurred when there was jaundice but, in its absence, only occurred in cholelithiasis during an attack of pain. The most valuable differential diagnostic sign in distinguishing gall-bladder disease from the other affections producing pain in the upper abdomen, was the marked increase in the functions of the duodenal juice when the gall-bladder was actually affected.

GASTRO-DUODENAL ULCER

Palmer[10] studied various cases of gastric and duodenal ulcers with balloons which were swallowed by the patient and attached to a manometer. The balloon was attached to a Rehfuss tube so that material could be injected or withdrawn from the stomach or duodenum. Fluoroscopy was also employed to determine the actual site of the balloons.

The author's conclusions are as follows: peptic ulcer of the stomach with true achlohydria occurs rarely and the nature of the pain in such cases is unsettled. Hydrochloric acid is the normal stimulus to the pain producing mechanism of sensitive peptic ulcers. Normal gastric peristalsis may be an adequate mechanical stimulus in very sensitive ulcers. Hydrochloric acid may sensitize both the sensory and motor gastric mechanisms. No evidence was found to show that hyperchlohydria may cause typical ulcer pain in the absence of definite organic lesions of the gastric or duodenal mucosa.

Under differing conditions acid irritation and muscle tension may be responsible for all or a part or none of the pain of gastric carcinoma.

Rivers[11] has tried to solve the origin of gastro-duodenal hemorrhage where no frank lesion can be discovered to account for it and is often passed off as "gall-bladder or appendical bleeding". Three cases were studied where there had been both hematemesis and melaena with vague dyspeptic symptoms, following none of the classical ones which accompany gastric or duodenal ulcers. In one case at operation, a small hemorrhagic spot was found on the anterior surface of the duodenum and stippling but no clear evidence of an ulcer. Another case was that of hemorrhage occurring some months after a gastro-enterostomy for a perforating duodenal ulcer.

At operation the ring of the stoma showed a number of highly injected areas which were taken to be the origin of the bleeding but there was no evidence of an ulcer.

In the third case only, adhesions between the duodenum and gall-bladder were found in conjunction with a diseased appendix. In all these periapical abscesses were found in the teeth and cultures of these were injected into rabbits, producing a duodenitis in every case, with submucous and frank hemorrhage. The author's conclusions are that many of these lesions are due to bacterial infections and are forerunners of true ulcers. Hence there is an early need in such cases of the removal of all sources of infecton (teeth, tonsils, etc.) and a bland diet of high caloric value.

RELATION OF PEPTIC ULCER TO PULMONARY TUBERCULOSIS

Winkelbauer and Frish[12] have collected a number of cases where peptic ulcer has been associated with pulmonary tuberculosis and have tried to solve the question of the duty of the physician in such instances where nutrition is of vital importance and is necessarily damaged by the gastric or duodenal lesion.

The first class includes those cases where there is pyloric stenosis and frequent vomiting subsequent to a phthisis: gastroenterostomy was performed but the patient died.

Two other cases in which the ulcer was the main feature and where pulmonary tuberculosis was unsuspected though probably present in its incipiency, developed an active phthisis after gastroenterostomy.

In another instance where no operation was performed, the occurrence of the ulcer caused such rapid progress in the pulmonary disease that death occurred two weeks after entering the hospital.

In two other cases of latent phthisis where the perforation of the ulcer demanded an immediate operation, the patients after a stormy postoperative convalescence, due to the lighting up of a quiescent tubercular process in the lungs, were discharged from the hospital in an arrested condition though tubercular bacilli were still present in the sputum.

Their conclusions are that only in the presence of the almost complete stenosis of the pylorus or perforation, should operative intervention for peptic ulcer be attempted in those affected with pulmonary tuberculosis.

VARIATIONS IN SALIVA AND PANCREATIC SECRETION

Delhougne[13] attempted to solve the effect of the increase or diminution of salivary secretion on the gastric digestion.

The patient was asked to chew briskly while fasting for ten minutes while the saliva was collected and tested for amylolitic action and alkalinity. The secretion of saliva, thus fractioned by periods of ten minutes, was collected for two hours.

The amylolitic action is at first weak but steadily increases, until it reaches its maximum in 20-30 minutes.

An attempt was made to show the influence of saliva on gastric secretion by pouring 40 C.C. of the former through a permanent gastric tube together with dextrose and water with a control

of the sugar and water alone. It was found that in 15 of 17 cases that there was a marked increase in the gastric secretion of hydrochloric acid due to the effect of the saliva. On the contrary active digestion on the part of the stomach and intestines did not tend to increase the amount of saliva as measured by its ptyalin content.

Kusnetzow and Michailowa[14] used an ordinary duodenal sound which was introduced in the fasting individuals to the length of 50 cm. and all gastric secretion removed by suction; the patient was then placed on the right side and the remainder of the tube introduced and at intervals suction employed until the character of the secretion showed that the end was in the duodenum.

The normal amount of duodenal juice secreted varied from 8-15 C.C. every 10 minutes. The number of tests made was 124 in persons suffering from digestive disturbances in all of whom a previous gastric analysis had been made.

Their results were summarized as follows: (1) in all cases of catarrhal jaundice the digestive power of the juice was diminished; (2) in most cases of cirrhosis of the liver, there was a reduction of the digestive activity; this was particularly true in atrophic cirrhosis; (3) in most of the cases of cholecystitis and cholelithiasis, there was no lessening of the digestive power; when these cases were accompanied by marked jaundice and intoxication there was a marked diminution in both the amount and activity of the duodenal juice; (4) this was also true in cancer of the pancreas and often in diabetes; (5) in all cases of chronic pancreatitis there was a lessening of the amount and power of the juice which also prevailed in acute enterocolitis; (6) in instances of gastric achylia there was found some reduction of both factors; in many others, however, there was an increase, an apparent overactivity of the pancreas to balance the deficient gastric digestion; (7) the use of some stimulating material, i. e., 2 C.C. of ether, helps markedly when the secretion is scanty.

DIAGNOSIS OF LIVER DISEASES

Noah[15] has investigated any changes in the amount of lactic acid in the blood of those afflicted with hepatic diseases including cancer. These examinations were made, while the patients were fasting, in 34 cases and in 22 instances the same examinations were made 3/4-1 1/2 hours after the ingestion of 40 grams of galactose or 50 grams of glucose. The patients were in complete rest; the blood was taken from the veins and no tourniquet was used.

The results were as follows: (1) persons suffering from hepatic diseases show a perfectly normal lactic acid content of the blood; in only two cases of atrophic cirrhosis just before death was an increase discovered which may have some value in prognosis; (2) when glucose or galactose is given to those with hepatic disease, in only a very small number of instances was any increase detected.

The author's final conclusion is that only in the most *severe* cases of hepatic disease just before death, does the liver show any inability to utilize carbohydrates as indicated in the increase of lactic acid in the blood.

SYPHILIS OF THE STOMACH

Herman[16] calls attention to the rarity of gastric syphilis in Europe as compared to its greater frequency in America and attributes it to the greater and more vigorous anti-luetic treatment in the former by which fewer cases reach the tertiary stage.

He reports one case of gastric syphilis very fully; there was absence of hydrochloric acid in the gastric contents but no mass and no occult blood. The radiogram showed a marked filling defect in the antrum: the Wassermann test was positive both in the blood and in the gastric contents.

Under vigorous anti-luetic treatment, the physical condition of the patient improved; the hydrochloric acid returned and the filling defect disappeared. The main distinction between cancer and syphilis of the stomach is the absence of cachexia and bleeding in the latter and the improvement under anti-syphilitic treatment.

MYOMATA OF THE INTESTINAL TRACT

Plenk[17] reviews the reported cases of intestinal myomata and then reports two cases. The first, a woman of 65 years, had frequent attacks of pain in the right lower quadrant, accompanied by nausea but no vomiting; these attacks of pain lasted several hours, followed by weeks of perfect health.

The diagnosis was chronic appendicitis but operation showed a myoma attached to the lower surface of the cecum measuring 4.5 cm. by 2 cm.; full recovery followed its removal.

The second case was that of a woman, 45 years of age, who had severe abdominal cramps for a month in the region of the navel, lasting 4-6 hours which gradually became more severe until obstipation accompanied by vomiting occurred. The diagnosis of intestinal obstruction from gall-stones was made but the laparotomy showed an invagination of 12 cm. of the lower ileum at the terminal of which was a myoma as large as a walnut. The patient died 14 days later of a bronchopneumonia.

The author urges, where atypical signs of obstruction occur, an early operation which may save the life of the patient.

THE AFTER RESULTS OF OPERATION ON THE STOMACH

Glassner and Ettinger[18], disturbed by the number of patients who returned with digestive

difficulties after gastroenterostomy and gastrectomy for ulcer, made an investigation of those unrelieved, by means of gastric content acid determination, examination of the stool for occult blood and the neutral red function test; the last consisted of 5 C.C. of a 1% solution injected into the gluteal muscle and the withdrawal of the gastric secretion by the duodenal sound, noting the first appearance of the pigment; a radiological examination of the stomach was also made in each case.

In three instances where gastroenterostomy was done, the evidence pointed to a recurrence of the old ulcer or the formation of a jejunal ulcer. There was no proof of diminished activity on the part of the peptic cells. Of the thirteen cases where gastrectomy was performed, only one was free from gastric symptoms and came to the hospital for another difficulty. The cause of distress in the others was equally divided between too small a portion of the stomach being left by the surgeon and a too rapid emptying of the gastric contents into the duodenum.

They recommend that the surgeon should remove only the ulcer and the adjacent part of the stomach.

TREATMENT OF HYPERACIDITY BY FAT

Steinitz and Sternfeld[19] investigated anew the influence of fat on gastric secretion; their method was to introduce a duodenal sound into the stomach, remove carefully by suction all secretion found there and then introduce 200 C.C. of unskimmed milk whose fat content varied between 2% and 3%. Then every 15 minutes, 20 C.C. of the gastric contents were removed and tested for the acid values.

Two days later the same patients were tested with an equal amount of milk and cream whose fat content varied from 12% to 15%.

The results are summarized in the following conclusions: (1) the appearance of the free hydrochloric acid is delayed by the fat and its rise slowed but in only half of the cases was there a total reduction in the amount of the acid secreted; (2) the total acid rose more slowly when the fat was given, maintained its maximum for a longer period and descended more slowly; (3) the motility of the stomach was in no way influenced by the ingestion of the fat; (4) the entrance of the duodenal contents into the stomach was not found to interfere with its acidity; (5) the reductions noted were due to a real restriction of the secretions of acid by the fat.

THE EFFECT OF PARTIAL GASTRECTOMY ON GASTRIC SECRETION

Klein[20] has examined 42 cases of partial gastrectomy at periods of from 3 weeks to 6 months after operation to determine the effect of this act on the secretion of the stomach. While in general gastroenterostomy produces anacidity of the stomach, there are many cases where free hydrochloric acid persists and these are the instances where the patient seems to experience difficulty after operation. Gastrectomy by removal of the antrum should produce anacidity. The duodenal tube was introduced into the stomach, the latter emptied and 8 ounces of gruel were poured through it.

Gastric contents were removed every 15 minutes for three hours and acid determinations made. Compared with gastroenterostomy, gastrectomy is much more effective in producing anacidity, but still for weeks after operation free acid is found. Furthermore the author insists that with the Rehfuss meal and fractional removal of contents, anacidity is very rare after gastroenterostomy.

The chances of producing anacidity after gastric ulcer by gastrectomy is much greater than after duodenal where the gastric secretion may rise to 50 C. C. per hour without the ingestion of food, i. e., "continuous secretion". The removal of the antrum by partial gastrectomy produces an immediate hypo-acidity and anacidity in 78% of gastric ulcers and 18% of duodenal ulcers. After 6 months these percentages rise to 100% and 66% respectively.

INTESTINAL PROTOZOA

Paulson and Andrews[21] have devised a method of procuring human feces from the sigmoid by means of the sigmoidoscope for the detection of protozoa rather than the usual method of employing the entire feces.

No laxative nor enema is employed before the introduction of the instrument and, if feces are encountered in the rectum, this is washed out before the specimen is taken.

After the instrument is in place the sigmoid is swabbed with a pledget of cotton rolled around an applicator and this spread thinly on a slide warmed to a temperature of 99 F.: at the same time cultures were made on a serum-saline-citrate medium: on the same day similar examinations were made with the defecated feces. In all 253 persons were examined of whom only 210 controls were made with the defecated feces. The author's conclusions were as follows: (1) the specimens from the sigmoid showed in 46.3% of the cases flagellates while the defecated material showed only 13.7% of incidence of growths; (2) there does not appear to be any uniformity of particular organisms with definite symptoms; (3) the influence of barium sulphate seems to be destructive to such organisms as only one half as many cases were found to

harbor protozoa where this drug had been administered within 6 days of the examination.

THE DIAGNOSIS OF GASTRIC AND DUODENAL ULCER BY ACID

Palmer[22] has studied the effect of dilute hydrochloric acid on both gastric and duodenal ulcers when introduced into the fasting stomach through a Rehfuss tube. The amount employed is 200 C.C. of one half per cent. solution repeated twice in half hour intervals, if no pain is caused by the first. Thirty patients with normal stomachs were used as a control and, even after the whole 600 C.C. had been introduced declared they experienced no discomfort. The same test was employed on those suffering from extragastric pain like cholecystitis, tabes, etc., and produced no distress. With the cases of true ulcer, however, typical pain of an ulcer was produced after the first or rarely after the second injection which was relieved instantly when the fluid was withdrawn through the tube which remained in situ during the test.

Similar pain was produced by the acid in a very few cases of gastric carcinoma but much less frequently than in the benign ulceration.

The author's conclusions follow: (1) the "acid test" is usually positive in all gastric and duodenal ulcers and in a few cases of gastric cancer; (2) a negative test does not necessarily exclude these lesions; (3) the test has been negative in all instances where there was no ulcerative lesion of the stomach or duodenum; (4) during the course of treatment of an ulcer, the presence of pain during the "acid test" shows that healing is not complete. These conclusions are based on an investigation of 177 cases, 11 of which proved to be cancer.

REFERENCES

1 Die diagnostische Wert der Gallenblasendarstellung im Roentgenbild. Grebe, A.: Muench. Med. Woch.: 74, 269.
2 Ueber funktionelle Stoerungen der Duodenalperistaltik. Eimer, K.: Deutsch. Med. Woch.: 53, 1179.
3 Contribution a l'Etude clinique et radeologique des Diverticules du Duodenum. Rabineau, M., et Gally, L.: Arch. des Malad. de l'Appareil Digestif: 16, 1007.
4 Die Roentgendiagnostik der Appendix und ihre Ergebnisse. Czepa, A.: Wien. klin. Woch.: 40, 645.
5 Diagnostic clinique et radiologique des Appendicites chroniques. Baumel, J.: Arch. des Malad. de l'Appareil Digestif: 16, 552.
6 Ueber unblutige Gallenwege-Drainage. Strauss, H.: Die Therap. der Gegenw.: 68, 49.
7 Ueber gleichzeitige fraktionierte Magen-und Duodenalsaftuntersuchung. Markoff, A. M.: Deutsch. Archiv. fuer klin. Med.: 155, 129.
8 Sur les Rapports de l'Appendicite chronique et des Modifications de la Sécrétion gastrique. Guequetschkori, N.: Arch. des Malad. de l'Appareil Digestif: 17, 532.
9 Die gegenzeitigen Beziehungen zwischen Gallenblasenerkrankungen und der sekretorischen Funktion des Magen und des Pankreas. Hechtmann, G.: Arch. f. Verdauungsk.: 39, 219.
10 The Mechanism of Pain in Gastric and Duodenal Ulcer. Palmer, W. L.: Arch. of Intern. Med.: 39, 109.
11 Hemorrhagic Focal Gastroduodenal Lesions. Rivers, A. B.: Arch. of Intern. Med.: 39, 564.
12 Ulkus Pepticum und Lungentuberkulose: Zur Frage ihrer gegenzeitigen Beeinflussung. Winkelbauer, A., and Frisch, A. V.: Wien. klin. Woch.: 40, 309.
13 Untersuchuengen ueber die Speichelsekretion. Delhougne, Frantz: Deutsch. Arch. f. klin. Med., 154, 305.
14 Die Sekretiontaetigkeit der Bauchspeicheldruese in Verlaufe von Erkrankungen der Digestionsorgane. Kusnetzow, H. W., und Michailowa, S. J.: Arch. f. Verdauungsk.: 40, 41.
15 Milchsauereuntersuchungen im Blut, inbesondere bei Lebererkrankungen. Noah, G.: Klin. Woch.: 631, 1465.
16 Ueber Magenlues. Herman, K.: Wien. klin. Woch.: 40, 1000.
17 Zur Kasuistik und Klinik der Darmmyome. Plenk, A.: Wien. klin. Woch.: 40, 556.
18 Klinische Nachuntersuchung bei Magenoperierten. Glaessner, K., und Ettinger, D.: Arch. f. Verdauungsk.: 40, 233.
19 Zue Fettbehandlung der Hyperaziditaet. Steinitz, H., und Sternfeld, M.: Arch. f. Verdauungsk.: 39, 50.
20 Gastric Secretion after Partial Gastrectomy. Klein, E.: Jour. Am. Med. Assn.: 89, 1235.
21 The Detection and Incidence of Human Intestinal Protozoa by the Sigmoidoscope. Paulson, M., and Andrews, J. M.: Jour. Am. Med. Assn.: 88, 1876.
22 "Acid Test" in Gastric and Duodenal Ulcer. Palmer, W. L.: Jour. Am. Med. Assn.: 88, 1778.

RADIO ADDRESS ON "THE FAMILY MEDICINE CLOSET"

Dr. Stephen R. Davis of East Lynn, early this month talked over station WEEI under the sponsorship of the Essex County Health Association, taking as his subject the uses and importance of the household first-aid medicine cabinet.

For minor injuries he recommended that antiseptics be kept on hand as well as sterilized one-, two- and three-inch bandages, antiseptic gauze pads and absorbent cotton. The use of iodine was explained, and the best way to dress a wound and control hemorrhage.

Other emergencies requiring immediate treatment were considered in the talk—convulsions in children—burns, to be dressed with carron oil—croup to be relieved with ipecac—fainting spells—dog bites—ruptured varicose veins.

In summary Dr. Davis recommends that the medicine chest contain bandages, antiseptic gauze pads, absorbent cotton, adhesive plaster, antiseptics, tincture of iodine, fountain syringe, hot water bag, icecap, carron oil, syrup of ipecac, aromatic spirits of ammonia, paregoric and nitre.

Dr. Davis' talk was exceedingly sensible and timely; few families have a well chosen stock of supplies in their medicine closets, and perhaps it is due to the neglect of the family physician that they have not. We trust that many radio listeners will have taken his word to heart and secured this inexpensive but invaluable equipment; we trust that through this report of his talk many physicians will add to their duties that of advising their patients in this respect.

Case Records of the Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 13571

PAIN IN THE RIGHT FOOT

MEDICAL DEPARTMENT

First admission. An unmarried Swedish laundress sixty years old entered the hospital April 20 complaining of severe pain in the right foot.

Seven weeks before admission she suddenly felt a sharp burning pain in her right calf. The following morning the pain in the calf was gone, but the right foot was painful, cold, white, stiff and slightly swollen. She had had polydipsia and polyuria.

She had always been well. Except for an attack of "Spanish influenza" lasting a week when she was twenty she had never been in bed for more than a day. She had urinated three or four times at night all her life. Until five years before admission she had a vaginal discharge at times. During the winter before admission she had had burning on micturition. Twenty years before admission she weighed 190 pounds, her best weight. She now weighed 155.

The family history is not significant.

Clinical examination showed a slightly obese woman with pale skin and mucous membranes. The tongue showed slight atrophy of the papillae at the border. The apex impulse of the heart was not seen or felt. The left border of dullness was 10 centimeters to the left of midsternum, one centimeter outside the midclavicular line, right border 2 centimeters, supracardiac dullness 5 centimeters. The aortic second sound was accentuated and ringing. Sounds and action normal. No murmurs. Artery walls slightly thickened. Blood pressure 200/100. Right foot slightly swollen and tender along dorsum near phalanges. The rest of the examination is not significant.

Urine normal in amount, specific gravity 1.032 to 1.008, a slight trace to a very slight trace of albumin in five of seven specimens, (no catheter specimens,) 3.5 to 0.28 per cent. of sugar in the first three specimens, sediment pure pus or leaded with pus in the first six specimens, 0 to 5 leukocytes per field in the seventh. Blood sugar at admission 254. Blood, stool and Wassermann negative.

Chart practically normal.

X-ray films of the lower legs showed visible calcification of the tibial arteries, also hypertrophic changes about the margins of each knee joint and slight proliferative changes about the metatarsophalangeal joint of the great toe of each foot.

The morning after admission the right dorsalis pedis artery was not palpable. The patient was put on a diet of carbohydrates 60, protein 50, fat 120. She became sugar free in four days and remained so. Buerger exercises were given. The blood sugar came down to 164 May 3. May 5 she was discharged.

History of interval. After her discharge she was treated in the Out-Patient Department. Buerger exercises were continued. For a year she was unable to work. The pain in the foot steadily improved and at the end of a year disappeared, although the foot continued to feel "dead". Sometime between August and October after her discharge she spent five days in another hospital. While there her right foot was strapped for pronation with much relief. Six months before her second admission she was able to work as a laundress, and did so all summer without any difficulty. Her urine continued sugar free but showed increasing amounts of albumin. Two weeks before her second admission she began to have some dyspnea on exertion. October 31, nine days before admission, she vomited. Two days later she was so weak that she had to leave her work and be taken home. Three days before readmission she had dry cough when lying down. November 6 she coughed all night, slept little and had marked orthopnea. She slept almost none for the next two nights.

Second admission, November 8, a year and a half after her previous discharge.

On clinical examination she was very pale. Apex impulse of the heart not found. Left border of dullness 11.5 centimeters to the left of midsternum, 3.5 centimeters outside the midclavicular line, right border 2 centimeters, supracardiac dullness 7 centimeters, sounds and action normal, no murmurs. Artery walls normal. Blood pressure 130/80. An electrocardiogram showed normal rhythm, rate 100, slurred QRS, inverted T in all leads; intraventricular block. Signs of fluid at both bases posteriorly, more on the right. Slight edema of the left ankle. Neither dorsalis pedis artery was felt. Knee-jerks and ankle-jerks absent. Pupils normal.

Amount of urine not recorded, specific gravity 1.032 to 1.019, a very slight trace to a trace of albumin at all of five examinations, acetone once, diacetic acid questionable once. Sediment of a catheter specimen showed 10 to 15 leukocytes and 0 to 1 red cell per field, that of another catheter specimen showed 150 to 300 leukocytes per field. Another specimen was loaded with leukocytes; a fourth showed more than 500 per field. Two renal function tests 20 per cent. Urine culture, no growth. Blood 25,000 to 20,000 leukocytes, 64 per cent. polynuclears, hemoglobin 70 to 65 per cent., reds 4,920,000 to 4,300,000. Smear at entrance showed slight

achromia and poikilocytosis, occasional polychromatophilia; November 10 no achromia, definite anisocytosis, occasional poikilocytosis and polychromatophilia, numerous multilobular polymorphonuclears and vacuolated lymphocytes. Red cell diameter measurements normal. Bleeding time two minutes. At entrance non-protein nitrogen 44, blood sugar 194. Just before death non-protein nitrogen 140, blood sugar 228.

X-ray examination showed the bases of both lungs obscured by heavy breast shadows. Fluoroscopically there was an area of dullness at the right base which obliterated the peripheral portion of the right diaphragm and costophrenic angle. It suggested consolidation rather than fluid. The medial portion of the right diaphragm could be seen. Its excursion appeared normal. The left diaphragm was faintly visualized fluoroscopically and had normal excursion. There was no dullness at the left base.

Temperature 97° to 103°. Pulse 73 to 108, with a terminal rise to 140. Respirations 25 to 5 (morphia).

November 11 the temperature suddenly rose to 103° and the pulse to 110. The patient complained of precordial distress. The heart sounds were very poor. The blood pressure was 110 There was no friction rub. She vomited several times. The skin was cold and sweating. The lungs showed possible consolidation. At eleven o'clock the pulse was 100 and of very poor quality. The blood pressure was not obtained until adrenalin was given, when it was 100/90. The temperature was 98°, the respiratory rate 8 (partly at least from morphia). The heart sounds were as before. She was given 12 grains of digitalis before midnight and morphia, caffein and adrenalin. The following day by advice of a consultant venesection was done and 200 cubic centimeters of blood withdrawn. Rapid complete digitalization was attempted, but the patient vomited so much that this was discontinued when 19 grains had been given. November 13 the visiting physician found her very pale and cyanotic, with Cheyne-Stokes respiration. The heart sounds were very faint; no friction or murmurs. He found dullness, bronchial breathing and egophony at the right base, tactile fremitus much diminished or absent. She continued to vomit, retaining nothing by mouth. By evening the pulse was 120 and very feeble. The heart sounds were nearly inaudible, with gallop rhythm; blood pressure 120/80; temperature 99°. The respirations were 5 to 8 until evening, when they were 12. The lung signs were unchanged. The morning of November 14 she died.

Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

It is uncommon to see patients enter a hospital for pain in the foot. They usually go to an Out-Patient Department for treatment.

After reading the description of the foot in the next paragraph one immediately thinks of vascular block, presumably arterial. It must have been small because it did not seem to result in gangrene.

NOTES ON THE PHYSICAL EXAMINATION

Atrophy of the papillae at the base of the tongue near the root has often been associated with syphilis. But atrophy of the border papillae as far as I know does not point to anything in particular.

There is a moderately hypertrophied heart due presumably to chronic hypertension.

"Right foot slightly swollen and tender along dorsum near phalanges." That is all they found in the right foot at that time apparently. It was not cold, numb, discolored or otherwise abnormal.

This was not a catheter specimen of urine; therefore that pus means nothing. No one should ever pay attention to pus in the urine of a woman unless in a catheter specimen.

Of course we must realize that in a considerable proportion of normal people we are unable to feel one or both dorsalis pedis arteries. It is only when you can feel the one on the other side that you feel particularly concerned about the absence of pulsation in one of the dorsalis pedis arteries. I assume that pulsation was felt on the other side.

Buerger exercises are exercises of the feet, active and passive motion, supposed to help circulation.

If we ask what diagnosis they made at the time of her first discharge, I believe that they made a diagnosis of diabetes associated with arteriosclerotic changes, one of which had come dangerously near gangrene. They gave her no local treatment except exercises; they treated her for diabetes and let her go.

NOTES ON THE HISTORY OF INTERVAL

I think we have to imagine that vascular obstruction took place, but that collateral circulation was restored so that she gets along very well except for a certain amount of anesthesia.

That dyspnea on exertion seems to be a new complaint.

NOTES ON THE PHYSICAL EXAMINATION, SECOND ADMISSION

It is very common that in a hypertensive arteriosclerotic heart disease one goes along without symptoms for a long period, and if at that stage you happen to measure the blood pressure you find it high. X-ray shows the heart large, the arteries arteriosclerotic, and you may find albumin in the urine. Then without any particular cause that you can discover cardiac compensation fails. We are always inquiring—and we are right in doing so—inquiring for reasons

for that. Occasionally it is due to muscular exertion. A patient suddenly lifts a great deal more than usual, or goes up and down stairs more. More often we find that it is infectious disease, a cold in the head or a sore throat, which disables a heart where compensation was good enough before, but by weakening the myocardium has brought on this condition. If accurate, the blood pressure of 130/80 has now considerably increased. I call your attention to that because many of our cases come into a hospital for the first time in their lives when the blood pressure is like this second measurement, 130/80. They go steadily downhill and die. The heart is found big. How do we account for that big heart? The only thing to say is that there was a hypertension earlier, as we know in this case, but it was not there at the very end.

We have two of the worst electrocardiographic signs that you can have, signs on which we are putting more and more stress now as evidence of bad myocardial trouble. A few years ago we were talking a great deal about the electrocardiogram and its value in the interpretation of arrhythmias. Now that has pretty well passed. Inverted T waves in all leads, especially the second, and changes in the QRS complex, which we have here, are two very important prognostically bad electrocardiographic signs.

The findings in the lungs are evidence of hydrothorax.

My total impression is that there is something going on in the urinary tract which is the cause of this leukocytosis.

That blood examination means very little. It is just a question of how hard you look for details. Some one who is very enthusiastic will describe all sorts of things. That is a very slight secondary anemia.

The X-ray shows very little evidence of hydrothorax, although without it we had thought that was present.

You see they are looking for pericarditis as evidence of cardiac infarction, suspected because of the electrocardiographic signs we have had.

The lung signs now do not go well with solidification. They look more like fluid.

DIFFERENTIAL DIAGNOSIS

In this second entry we have chronic passive congestion, which was shown before she came in by her orthopnea, and which has gone on since. It is true however that she has relatively little evidence of fluid in the serous sacs or subcutaneously. But we have no other obvious cause of death than that. So it seems to me better to say the main cause of death was chronic passive congestion rather than any block in the heart or any kidney disease.

What are we to expect on post-mortem examination? She ought to have a hypertrophied and dilated heart with arteriosclerosis and no valve lesion. We ought to expect kidneys which will share in the general arteriosclerosis but will not show nephritis. I think that on the ground of the good swing of gravity, on the good excretion of phthalein, and on the fact that only at the very end was the non-protein nitrogen particularly high. We have nothing that I see to make us think that the brain was affected. Of course in an arteriosclerotic case you are always thinking of three organs:—brain, heart and kidney. We have said everything we have to say on these three now.

The pus found in the urine once, and the signs at the base of the right lung, seem to be the other points which we have to deal with.

As to the pus in the urine, it is perfectly possible that there is a mild "urinary infection", (which I think is a good term, though a vague one,) including the kidney and the bladder, but especially the kidney, and that that urinary infection was a terminal infection shown in the high leukocyte count and fever and sharing with the condition in the right lung the responsibility of being the immediate cause of death. I do not believe, however, that if she had not had chronic passive congestion she would have been killed by that infection. The combination of the chronic underlying cause and this immediate infection was too much for her.

Her diabetes doubtless affected her in some way, but it was pretty mild, and I do not see how we can say that it was important. I think it a minor factor. We have no evidence of acidosis, and she has had no more of the local troubles in the feet since that first entry. The slight secondary anemia rather tends to make us think that the kidney is more affected than the other facts about the kidney would warrant us in believing. But on the whole I stick by the majority of signs and say that it is a kidney with arteriosclerotic foci, but not enough to call nephritis. That is as far as I can go.

A STUDENT: In a pyelitis would you expect the urine culture to show some growth?

DR. CABOT: Yes. I do not like the term pyelitis, though. Usually we find trouble in the pelvis of the kidney and in the kidney too. I think it is better to say "urinary infection" with trouble in the pelvis also.

A STUDENT: She did have some acidosis.

DR. CABOT: Yes. But she had been vomiting at that time. I do not think we can say the acidosis was particularly related to the diabetes.

A STUDENT: Could you have myocarditis in diabetes, due to arteriosclerosis of the coronary artery and general weakening of the myocardium?

DR. CABOT: Yes, all of that.

A STUDENT: Could not all the arterial trouble be due to the diabetes?

DR. CABOT: That is not the way it is generally expressed. We do not say arteriosclerosis is the cause of diabetes. We say that we have the two together and we leave it there.

A STUDENT: I am not quite clear what you

thought about the condition of her right lung.

DR. CABOT: I am not clear myself. I think some consolidation will be found there, but whether it will be of clearly pneumonic type or whether of the type we sometimes call a "soggy" lung, due to mechanical rather than infectious trouble, I do not know, but I think I will say infectious rather than mechanical.

A word more about the myocardium. I do not think that at present even with the electrocardiographic signs we are able to predict definitely whether gross fibrous myocarditis will be present or not. I think it is perfectly possible, perhaps a little more than suggested; but with findings like these I have seen a myocardium that did not show anything in gross, although it was doubtless weakened.

A STUDENT: Could one say anything more definite about the sharp pain in the leg?

DR. CABOT: I do not know how we can. We should like to say it is embolism, but I have known a good many cases where no source of embolism ever came to light, a thrombus apparently due to narrowing of the artery and without any particular point elsewhere in the arterial system from which it could come.

A STUDENT: Do you think the pain in the foot might be due to a gonorrheal arthritis?

DR. CABOT: No. I think the chances are against it. We seem to have a cause for the pain outside the joint. Moreover the fact that we had one case of generalized gonorrheal infection here recently makes me feel pretty sure that it will be about three years before we have a gonorrheal case again. That perhaps is not a scientific way of reasoning in this case.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Diabetes mellitus.
Hypertensive and arteriosclerotic heart disease.
Hydrothorax.
Coronary occlusion.
Cerebral hemorrhage.

DR. RICHARD C. CABOT'S DIAGNOSIS

Hypertrophy and dilatation of the heart.
Arteriosclerosis.
Arteriosclerotic kidneys.
Chronic passive congestion.
Urinary infection.
Probably terminal pneumonia, right lung.

ANATOMIC DIAGNOSES

1. *Primary fatal lesion.*

Arteriosclerosis.

2. *Secondary or terminal lesions.*

Coronary sclerosis.
Arteriosclerotic nephritis.
Arteriosclerosis of the cerebral vessels.
Chronic passive congestion, general.
Bilateral hydrothorax.

3. *Historical landmarks.*

Leimyoma of the uterus.

DR. TRACY B. MALLORY: The findings in the case were almost entirely those of arteriosclerosis and its sequelae.

The pleural cavities showed a moderate amount, about 75 cubic centimeters, of fluid on both sides. The lungs showed chronic hypostatic congestion of both the lower lobes, but no definite pneumonic consolidation. There was no pericarditis.

The heart weighed 310 grams, which is a slight hypertrophy. Possibly it had once been larger, since the myocardium showed moderate brown atrophy. The valves were entirely negative and the coronary arteries showed very marked calcification, particularly the descending branch on the left, which was almost but not completely occluded. It was so narrow that a probe about 1.5 millimeters in diameter would not pass through it. It was, nevertheless, still barely patent. The right coronary also showed one point of marked constriction. The myocardium did not show any gross fibrous scars. The aorta of course showed very marked atheroma and calcification.

The liver showed chronic passive congestion.

The gall-bladder was negative.

The spleen showed chronic congestion.

The kidneys weighed 355 grams. They were of slightly increased firmness. The capsules stripped with a little difficulty, leaving a rather uniformly finely granular surface. Microscopic examination showed a considerable degree of endarteritis of the smaller arterial branches and numerous partially and completely sclerosed glomeruli. I should call it an early stage of a genuine arteriosclerotic nephritis.

The pelves of the kidneys and the bladder showed a mild degree of infection.

The brain was negative except for arteriosclerosis of the vessels at the base.

I doubt if the diabetes was a very severe factor in the case. Nowadays we very rarely see a death from diabetes itself. In the days before insulin treatment, when that cause of death was common, we could check it post morten with considerable regularity by the finding of glycogen droplets in the epithelial cells of the Henle's loops in the kidney. The glycogen stain was made in this kidney without finding any such evidences of diabetes. Presumably with diet and possibly insulin treatment her diabetic condition had been kept at a relatively normal level, so no anatomic changes could be produced.

DR. CABOT: You say there was a pyelitis and the rest of the urinary tract was normal?

DR. MALLORY: Yes, slight pyelitis.

DR. CABOT: The kidney was all right, that is as far as infection is concerned?

DR. MALLORY: Yes.

DR. CABOT: Did you cut the myocardium?

DR. MALLORY: No patches of fibrosis were found. Many muscle cells showed vacuolization.

A STUDENT: Was the foot examined?

DR. MALLORY: No.

A STUDENT: The pancreas showed nothing?

DR. MALLORY: Only a very moderate degree of fat infiltration.

CASE 13572

HOW LONG SHOULD CONSTIPATION BE TREATED WITHOUT INVESTIGATION?

SURGICAL DEPARTMENT

An unmarried Irish-American housekeeper fifty-seven years old entered the hospital July 9 complaining of constipation.

The symptom began four months before admission and had gradually become persistent. For two months it had not yielded to cathartics, which caused severe griping pain in the lower abdomen, sometimes more marked in the left side. Her bowels now moved only two or three times a week. Enemas gave very little result. She had slight lower abdominal pain after eating. There was constant rumbling of the bowels, often very loud. She passed much gas. Her appetite had been poor since the onset. For ten days she had taken only fluids for fear of complete obstruction. X-ray examination done July 1 in the Out-Patient Department of this hospital showed the barium apparently obstructed in the midportion of the descending colon. Several attempts to get the barium beyond this point were unsatisfactory. During the past two days she had felt weaker. Her abdomen had become bloated for the first time, and she had tenesmus. Her stools had been small, dark, hard and lumpy. She had lost six pounds in the past six months. Her best weight was 143 pounds, her present weight 126.

The family history is good.

She has always had good health in the past. For twenty years she had had "goiter" enlargement with no symptoms. For the past two winters she had had cough with much sputum. For the past year she had occasionally had tingling of the right hand.

Clinical examination showed a rather thin woman lying comfortably. The skin and sclerae seemed slightly icteric. The thyroid showed definite enlargement, chiefly of the left lobe and isthmus and the lower pole of the right lobe. It seemed rather smooth but made up of nodules of thyroid tissue. Part of it seemed to be substernal. The lungs were clear. Voice and breath sounds were diminished over the left upper back. The apex impulse of the heart was not found. The percussion measurements were normal. The sounds were of good quality, rather snapping at the apex, the action regular. There were no definite murmurs. The artery walls were normal. The blood pressure was 140/75. The abdomen was markedly distended, especially below the umbilicus. No masses could be made out, chiefly because of spasm and some rigidity. There was considerable tenderness just to the left of and above the umbilicus. Palpation showed marked succussion. There was shifting dullness, more marked in the left flank than in the right. The liver did not seem to be enlarged. Pelvic examination could not be completed, as the introitus barely admitted one finger. Rectal examination showed a very large mass anteriorly. Nothing was felt in the sides. The mass in the center seemed larger than the uterus. Apparently a few glands were palpable. The extremities were normal. The pupils were slightly irregular, but reacted normally to light and distance. The knee-jerks and ankle-jerks were not obtained.

Before operation amount of urine not recorded, urine not remarkable. Blood: hemoglobin 75 per cent., reds 5,500,000, some achromia, leucocytes 8,200, polynuclears 75 per cent., platelets normal. Wassermann negative.

July 12 operation was done. Two days later the patient had lost all distention and was very comfortable. She continued to make good improvement. The wound was clean and drained well.

July 26 a second operation was done. She made a good ether recovery and was in fair condition afterward. The wound was clean. There was a little drainage. By the third of August she had developed phlebitis in the left leg. August 15 she was weaker and was running an irregular temperature. The wound was somewhat septic. August 17 an abscess of one of the incisions was opened and considerable foul pus removed. Impacted feces were removed from the rectum under gas. By August 20 the temperature had come down and the condition seemed better than for some time. August 24 she was again running an irregular temperature. From this point she failed gradually. There was a pelvic mass of uncertain nature. The patient was so exhausted that tenderness could not be depended upon for differential diagnosis. After the 28th the temperature was elevated. By the 31st she was taking no food. September 3 she died.

DISCUSSION

BY EDWARD L. YOUNG, JR., M.D.

The first two sentences taken together in connection with the age of this patient justify a very thorough examination, because one thing that we must not forget is the constantly repeated statement that any change in the normal bowel habits of an individual, particularly at this age, should be viewed with suspicion.

There is only one thing lacking here to make an arbitrary diagnosis of malignant disease, and that is blood. But as it stands the symptoms are so conclusive that it seems hard to dodge that diagnosis.

The X-ray does not show much except that we

can see the pretty abrupt stop in the bowel. It seems as though it would be impossible to put any other diagnosis in here as a differential. Stricture of the descending colon other than malignant stricture or stricture from an inflammatory process of diverticula is practically unknown. There is no evidence here of diverticula, and the story is that of the obstruction of malignant disease rather than of the inflammatory constriction of diverticulitis.

It always seems extraordinary to me how far many individuals will go with symptoms as severe as this without reporting for help.

Icterus always make us wonder, in the presence of our belief in malignant disease, as to whether or not there is a liver metastasis.

In view of the examination the only other diagnosis which could be at all considered would seem to me to be malignant disease starting in the pelvis which had extended out into the left flank and was obstructing the bowel through direct extension; but that seems rather a far shot. It would seem to me that we have one absolute diagnosis and that is intestinal obstruction, chronic, and the first thing to do is to relieve that obstruction, because no operation can be undertaken toward the curing of this situation, whatever it is, until the patient has been improved somewhat in general condition and until the obstruction has been relieved. Accordingly, it would seem to me that the first thing to do is an abdominal incision with a colostomy above the obstruction, and the estimation of whether or not it is possible to do anything more. It may well be that when the surgeon's hand is in the abdomen a condition will be found which is beyond surgical help, and the colostomy will be the whole thing.

I should assume the first diagnosis I would make would be carcinoma of the descending colon, and I should say that would be about all that I should seriously consider. Carcinoma of the pelvis extending to the descending colon would be a very poor second.

I did not speak about the question of anesthesia. Of course in a patient in this condition local anesthesia is obviously the anesthesia of choice, because the operation is not going to be extensive and the less shock that can be handed to the patient the better.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Carcinoma of the descending colon.

PRE-OPERATIVE DIAGNOSIS JULY 12

Carcinoma of the colon.

FIRST OPERATION

Under local novocain a right rectus incision was made through the outer border of muscle. A tense loop of bowel presented. Its muscular coat split as it was delivered. It was not certain whether this was ascending colon. At any rate it was obviously the part of the intestine to drain. Three purse string sutures of silk were placed and a rubber tube stretched over a glass tube was introduced into the bowel and its wall inverted around it. The intestine was stitched to the peritoneum, the fascia closed and the superficial part of the wound left open on account of soiling. There was abundant discharge through the tube during operation.

FURTHER DISCUSSION

The only possible criticism of that operation is that they did not find out as much as they might have. But nevertheless if she was very sick they did the only thing possible to get her to the stage where something could be done, because anything more extensive, even enough of an incision and enough trauma to explore the liver and glands and the mass itself, might have resulted fatally, and certainly during two weeks she did very well with this colostomy.

We will stand by our original diagnosis.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Carcinoma of the descending colon.

PRE-OPERATIVE DIAGNOSIS JULY 26

Carcinoma of the descending colon.

SECOND OPERATION

Gas and ether. Incision through left rectus muscle. The growth was found to be a small spool-like structure without regional metastases. No metastasis in the liver. The splenic flexure was freed and the left colon rendered mobile. About 9 inches of the intestine above and 3 inches below the growth was removed with the regional blood supply and lymphatics. End-to-end anastomosis was done by basting thread technique. The ends of the intestines were inverted and closed with sutures which were subsequently removed. An end-to-end anastomosis was done with two layers of continuous catgut, the epiploic and omental fat being sutured over the line of union. One cigarette wick through the stab wound.

PATHOLOGICAL REPORT

A section of large intestine 28 centimeters long with the mesentery. On section there is an annular hard growth near one cut end which is superficially ulcerated and has prominent raised margins. The lymph nodes in the mesentery are enlarged to the size of a pea and are soft.

Microscopic examination of the tumor shows a structure of large irregular gland tubules lined by atypical columnar epithelial cells deeply invading the muscular wall.

Adenocarcinoma.

FINAL REPORT AUGUST 8

The lymph nodes are negative.

ADDITIONAL NOTES FROM HISTORY

The ileostomy tube worked well. There was good drainage around it. By August 3 the bowels had not moved. August 7 the wick was removed. There was considerable drainage from the wick sinus, not much drainage from the cecostomy. August 10 the anastomosis had apparently broken down, as there was profuse drainage of feces through the wick sinus. There were still no regular bowel movements. The general condition was not good. By August 20 there had been a movement by rectum. August 24 there was profuse drainage from all three incisions. There were now practically no movements by rectum.

FURTHER DISCUSSION

This time they felt that they had to have relaxation, and gas and ether were used.

It is interesting to me where all these large masses disappear at operation and at necropsy that are felt on examination. I have been waiting for them to say there was in addition a large fibroid. "Rectal examination showed a very large mass anteriorly" suggests that they at least ought to have felt something. Perhaps they did. Perhaps Dr. Mallory will tell us so.

Logically that pelvic mass would suggest that it is a septic mass as a result of localized peritonitis from the operation.

She died nearly six weeks after operation. It seems to me that the logical thing here is to assume sepsis from the line of anastomosis which did not hold well, and that this patient died of sepsis, probably mostly localized in the pelvis but with the possibility of more or less general infection through the peritoneal cavity. In view of what we were told at the time of operation it does not seem as though there would be evidence of carcinoma elsewhere.

A PHYSICIAN: Was the icteric index done on this patient?

DR. YOUNG: There is no evidence of it here.

A PHYSICIAN: Was the fluid found in the abdomen?

DR. YOUNG: There is no record of it here. I think that is another thing that is usually very uncertain in the clinical findings, that more often than not it is disproved either by operation or at necropsy. We have had some very interesting cases recently where the examination showed something and even the operation showed something, and Dr. Mallory was able to say that it was not so, that it was either pure imagination or that what was felt was different from what it was supposed to be.

A PHYSICIAN: How do you account for that high red count?

DR. YOUNG: Dehydration, I should assume, would account for it. Is that true, Dr. Lord?

DR. FREDERICK T. LORD: To some extent.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Carcinoma of the colon.
Myocardial failure.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Carcinoma of the descending colon.
Peritonitis.
Septicemia.

ANATOMIC DIAGNOSES

(Adenocarcinoma of the descending colon.)
Retroperitoneal abscess.
Pelvic peritonitis.
Operative wound, colostomy.
Leiomyoma of the uterus.

DR. TRACY B. MALLORY: As Dr. Young predicted, the line of sutures at the anastomosis did break down, which led to a pelvic peritonitis. At the time of necropsy considerable amounts of free fecal material were found in the pelvis. There was also a second septic process in the form of a thrombosis of the left iliac vein, and a rather large retroperitoneal abscess which apparently had developed from that.

The mass which they felt in the pelvis was a real one in the form of a greatly enlarged uterus with a big intramural fibroid six centimeters in diameter. The other findings are all essentially negative.

DR. YOUNG: There is no evidence of any metastasis?

DR. MALLORY: No.

DR. YOUNG: In other words, a death from sepsis.

DR. DAVID MOXON HAS BEEN ASSIGNED TO WORK WITH THE MASSACHUSETTS TUBERCULOSIS LEAGUE—David Moxon, B.S., C.P.H., a Junior Staff member of the National Tuberculosis Association, has been sent by the National Office to spend a month working with the Massachusetts Tuberculosis League preparing for the Early Diagnosis Campaign which will be conducted in March.

Mr. Moxon is a graduate of Yale University, took post-graduate work in public health under Dr. C.-E. A. Winslow, and received his degree of C.P.H. from the School of Public Health of Yale. For a time he was connected with the Bacteriological Laboratory of the City of Holyoke. Recently he has been doing field work for the National Tuberculosis Association in Florida and Arkansas.

THE UNITED STATES PUBLIC HEALTH SERVICE THREATENS TO REFUSE ENDORSEMENT OF THE STATE REGULATIONS RELATIVE TO SHELLFISH—A report has been received by Dr. George H. Bigelow, Commissioner of Health, from the United States Public Health Service threatening to withhold certificates of cleanliness from all interstate shipments of Massachusetts shellfish unless the state at once provides more effective policing of contaminated areas.

This action is the result of investigations of conditions at Revere Beach. The federal inspectors claim that evidence of contamination on this beach has been shown.

Dr. Bigelow has made a statement urging the Legislature to make appropriation for more adequate enforcement of the laws.

THE BOSTON
Medical and Surgical Journal

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY under the jurisdiction of the following-named committee:

For Three Years

JOHN W. BARTOL, M.D. FREDERICK T. LORD, M.D.
CHANNING FROTHINGHAM, M.D.

For Two Years

HOMER GAGE, M.D., *Chairman* EDWARD C. STREETER, M.D.
EDWARD W. TAYLOR, M.D.

For One Year

WILLIAM H. ROBEY, JR., M.D. ROGER I. LEE, M.D.
ROBERT B. OSGOOD, M.D.

EDITORIAL STAFF

DAVID L. EDSALL, M.D. STEPHEN RUSHMORE, M.D.
REID HUNT, M.D. HANS ZINSSER, M.D.
JOHN P. SUTHERLAND, M.D. BENJAMIN WHITE, PH.D.
GEORGE R. MINOT, M.D. HENRY R. VIETS, M.D.
FRANK H. LAHEY, M.D. ROBERT N. NYE, M.D.
SHIELDS WARREN, M.D.

WALTER P. BOWERS, M.D., *Managing Editor*

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D. WILLIAM B. BREED, M.D.
JOSEPH GARLAND, M.D.

NEW HAMPSHIRE MEDICAL SOCIETY
PUBLICATION COMMITTEE

D. E. SULLIVAN, M.D. EMERY M. FITCH, M.D.
JOSEPH J. COBB, M.D.

VERMONT STATE MEDICAL SOCIETY
PUBLICATION COMMITTEE

WILLIAM G. RICKER, M.D. C. F. DALTON, M.D.
J. A. WARK, M.D.

SUBSCRIPTION TERMS: *$6.00 per year in advance, postage paid for the United States, $7.56 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 126 Massachusetts Avenue.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Avenue, Boston, Mass.

THE WORK OF THE COMMITTEE ON CLINICS

AT the last meeting of the Council of the Massachusetts Medical Society it was voted that a committee made up of one member to be chosen by each District Society study and report upon clinics and similar medical agencies throughout the State.

It is not the purpose of the JOURNAL to forestall or hamper the work of this committee. It may not be amiss, however, to emphasize the magnitude and complexity of the problems involved. In the small town the situation is different from that in the large city, yet in each case the relations of the physician to the public are concerned.

In the village with only one or two physicians the medical care of the community devolves wholly upon these men except in so far as the people go to larger communities for necessary attention. A certain amount of work must be done for little or no remuneration, whether or not it is done under the ægis of some locally organized charity.

In the smaller cities there are the local hospitals. Some are open to all physicians; others have limited staffs. In the large cities there are the municipal and private hospitals with their definitely limited staffs and their organized outpatient departments. In Boston the problem is complicated by the need of teaching medical students. In some communities the hospitals and clinics conducted solely by limited groups of doctors are important factors.

The public takes little or no interest in dissensions arising over matters of medical ethics, but it is always possible to secure widespread and intelligent coöperation in helping to solve any broad problems of public welfare. Each community can and if necessary will settle any problems which confront it on the basis of expediency. Such settlements are local and temporary.

The JOURNAL ventures to suggest that the creation of this State-wide committee offers an opportunity for really constructive work. After more or less careful formulation of the problems as they exist in the small towns, in the larger cities and in Boston might not the representatives of the organized charities in those communities in which conditions appear to be best, be invited to meet the committee for further conference?

Later still as problems become more clearly defined might not local committees meet with local representatives of the medical profession and formulate definite policies?

Nobody can expect any permanent solution of the vexing questions which arise. Inside the profession the growth of specialization and outside the profession the tremendous changes in the distribution of wealth are but two very recent examples of the shifting conditions which complicate the existing situation.

The situation in Worcester must have much in common with that in Springfield, Lowell and Fall River. Problems arising in the smaller cities with one hospital must be very similar. Conference might aid in settling them. In Boston, discussion between the various teaching hospitals might be of help.

Physicians are not the only individuals concerned. The general public, the organized charities and the trustees of hospitals are all interested.

The work for the committee is hard and long if any good is to be accomplished. The revival of the section of the State Society dealing with Hospital Administration might give opportunity for promoting more widespread interest.

VACCINATION LEGISLATION—A PLEA

ONCE again that hardy—we almost said rank—perennial, the anti-vaccination bill is before the General Court. Undismayed by long continued failure of their many attempts to weaken the Commonwealth's compulsory vaccination law, the anti-vaccinationists, with a Fall River physician as their special pleader and spokes-

man, now ask that a conscientious objector's clause be written into the statute. The wording of the bill is bland but the intent is nefarious. With an utter disregard of the dire results following the abolition of compulsory vaccination in Minnesota and California, or of the insertion of a conscientious objector's clause into the British vaccination law, these self-appointed guardians of supposed personal liberty (to give them the most creditable title that we can conjure up) would break down a law that has served this Commonwealth as a stalwart bulwark against smallpox.

Not content with this plea for those who prefer not to be protected against smallpox, this same physician, if we merely take his second bill at its face value, would have a law enacted that would insure to the people of the Commonwealth pure vaccine virus!

This bill (House Bill No. 596) would forbid by law the inoculation of any child or person with a virus or product that contains living germs of smallpox, or that is capable of causing smallpox. It would also forbid the distribution and sale of any preparation which is "supposed to be, or is represented to be cowpox virus" and which contains bacilli of tuberculosis, et cetera "or any living microörganism except those of cowpox." This at first sight all sounds harmless and quite praiseworthy. The petitioner wants to make sure that those who desire to be vaccinated can be certain that they will not acquire smallpox, tuberculosis or tetanus from the vaccine itself. But no such law is needed because vaccine virus is not made from smallpox virus, and the rigid system of Federal inspection, test and control insures the freedom of present day vaccine from harmful organisms. This, however, is not the real purpose of the bill. Through a wilful misinterpretation of a technical point the petitioner would absolutely prohibit the distribution and use of all vaccine virus as now manufactured! Vaccine virus when prepared does contain "living microörganisms other than those of cowpox," but they are organism entirely harmless to man as shown by all laboratory and clinical tests, and therefore are of no significance.

The same petitioner would, if we read his real intention aright, double the assurance that no one be vaccinated, by proposing still another bill, (House Bill No. 597) providing that any person who inoculates another person with vaccine virus shall present to the person so inoculated a statement in writing, guaranteeing that the vaccine virus used "is free from living germs of smallpox, bacilli of tuberculosis, bacilli of tetanus, spores of tetanus and any other pus-producing microörganisms."

Three more preposterous bills it would be difficult to conceive. But ridiculous as they are they hold a menace that should arouse the active opposition of all physicians and health officers. The compulsory vaccination law has brought security to the people of this Commonwealth from that devastating disease smallpox; the people require no laws to insure the purity of the vaccine virus used to protect them against smallpox—their vaccine virus is pure in every sense of that word. Vaccination against smallpox and vaccine virus need no apologists—they do need defenders against the attacks of those who would nullify our beneficient compulsory vaccination statute, and invite the return of our old time scourge.

Contrasted to these pernicious proposals is the bill (House Bill No. 793) introduced upon the petition of Slater Washburn and sponsored by Dr. Samuel B. Woodward. This bill would extend compulsory vaccination to children entering private schools. It seems to us that this is an entirely reasonable and desirable proposal and we bespeak its hearty support by the members of the medical profession. For over ten years Doctor Woodward, with scant aid from his medical colleagues has waged war against the anti-vaccinationists and although he has not had the good fortune to see his bill become a law, he has had the satisfaction of knowing that his efforts have been a telling factor in the frustration of the proposed anti-vaccination legislation. The time has come when every physician, every public health officer in the state must take an active part in keeping the compulsory vaccination law on the statute book. Write your Senators and Representatives registering your hearty support of House Bill No. 793 and your unqualified opposition to House Bills 595, 596 and 597. The physicians of this Commonwealth must see to it that such dangerous legislation is defeated.

DR. CAPPS WILL SPEAK ON PAIN

From time to time it is planned to have an eminent alumnus of the Massachusetts General Hospital talk at the Clinical Meetings of the Staff. These meetings are planned for the second Thursday of each month and physicians, medical students and nurses are cordially invited to attend.

On Thursday evening, February 9, Dr. Joseph A. Capps of Chicago will tell us about his investigation of "Pain in the Pleura, Peritoneum and Pericardium." Dr. Capps has made notable contributions to this subject by careful attention to the location of pain in patients with disturbances involving the pleura, peritoneum and pericardium and by the experimental irritation of various parts of the serous sacs.

Boston may well feel that she has a share in his achievements as he is a graduate of the Harvard Medical School (1895) and served that institution as a fellow in pathology in 1895-96. He is especially welcome as a speaker at the Staff Meeting of the Massachusetts General Hospital, where he served as Interne in 1896. He is now Professor of Medicine in Rush Medical College,

Chicago, and Chief of the Medical Staff at the Cook County Hospital. He holds the rank of Lieutenant-Colonel in the Medical Reserve Corps and was Consultant to the American Expeditionary Force.

The meeting will be held in the Moseley Memorial Building of the Massachusetts General Hospital and will begin at 8:15.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

FITZ, REGINALD. A.B., M.D. Harvard Medical School 1909, Physician at Peter Bent Brigham Hospital, Associate Professor of Medicine, Harvard Medical School. His subject is: "Clinical Observations on Well Patients". Page 1439. Address: 721 Huntington Ave., Boston, Massachusetts.

MEDALIA, LEON S. M.D. Tufts College Medical School 1905, Lieutenant Colonel Medical Reserve Corps and Commanding Officer of Laboratory Division First Corps Area, Center Laboratory, Formerly Instructor Pathology and Bacteriology Tufts College Medical and Dental School, Major Medical Corps and Chief of Laboratory and Infectious Disease Service Base Hospital, Camp McArthur, Waco, Texas, 1917-1919). His subject is: "Two Weeks' Course for Commanding Officers and Executives Medical Field Service, Carlisle Barracks, Pa." Page 1444. Address: 78 Bay State Road, Boston, Massachusetts.

BURPEE, B. P. A.B., M.D. Harvard 1914, Obstetrician at the Elliot Hospital, Manchester, N. H., Pediatrician at the Elliot and Balch Hospitals. His subject is: "Intracranial Hemorrhage of the Newborn: Its Relation to the Hemorrhagic Diathesis." Page 1449. Address: 922 Elm Street, Manchester, N. H.

BARNARD, H. E. B.S., Ph.D., Chemist N. H. State Board of Health, Chemist Ind. State Board of Health, State Food and Drug Commissioner of Ind., President of American Institute of Baking. His subject is: "The Trend of Nutritional Science." Page 1457. Address: 1135 Fullerton Avenue, Chicago, Ill.

AUSTIN, A. E. A.B., A.M., M.D. Harvard Medical School, 1887, Physician to Boston Dispensary, Emeritus, Assistant Professor of Clinical Medicine, Tufts Medical School, Formerly Physician to Massachusetts General Hospital, O.P.D., Formerly Professor in University of Virginia and University of Texas. His subject is: "Progress in Gastroenterology For 1927." Page 1464. Address: 270 Commonwealth Ave., Boston Massachusetts.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY
Foster S. Kellogg, M.D., *Chairman* — Frederick L. Good, M.D., *Secretary*
Frederick J. Lynch, M.D., *Clerk*

Is puerperal sepsis always due to faulty technique?

The answer to this question is "No!"

Since the discovery of the infectious nature of puerperal sepsis and the realization that it is wound infection, the medical profession and the laity have been educated to believe that this condition is practically always due to faulty technique. It seems time that emphasis was laid on the fact that a certain amount of puerperal sepsis is unavoidable even with the most carefully carried out aseptic precautions. Emphatically this does not mean that we should not make every effort to see that our technique is as perfect as possible. The more this is done the smaller number of cases of puerperal sepsis we will have.

In this connection it should be borne in mind that fully as important as bacteria in the causation of severe puerperal sepsis certain secondary causes exist. Some of these secondary causes are within our control, others not.

Without attempting to go into detail in so short an article regarding all these secondary causes, two must be considered. The first is frequently controllable, the other less so. The first is difficult operating, especially through the undilated cervix. The cardinal pathology in much severe puerperal sepsis is a wound of entrance in the severely lacerated cervix. Every effort should be made by the physician to obtain full dilatation of the cervix, preferably by nature before operating. If this rule is carried out it is bound to result in a diminution of puerperal sepsis.

The second condition which should be mentioned as a prominent contributory cause of puerperal sepsis is toxemia. The writer has demonstrated that a toxemic runs approximately four times the risk of being septic by similar methods of delivery as a non-toxemic. If we consider the greater frequency of operative delivery in toxemia it is nine times as great. At the same time it was established that on the whole, the more severe the toxemia the more likelihood of sepsis. The figures are, Control 2.5%—Toxemia Without Convulsions—14% Toxemia With Convulsions 25%. The lessons to be drawn from these observations are two: (1) That practitioners should not permit toxemia to become severe. (2) That if faced with severe toxemia every effort should be made to diminish the risk of sepsis in a given patient, especially she should not be operated through the undilated cervix. This rules out accouchment forcée in the treatment of toxemia of pregnancy.

Some of the evidence that all sepsis is not due

to faulty technique follows. We observe a certain number of patients who die of puerperal sepsis who are not examined vaginally in or near labor. We observe more of these patients during the so-called "respiratory" season than any other time of the year. From these observations it must be clear that a certain number of infections are autogenous, and that the infecting organisms enter the circulation through the tonsils or other part of the respiratory tract, or are harbored in the patient's own vagina or cervix; or occasionally through an acutely infected tooth. Other foci of entrance probably occasionally play their part. We have seen a case which nearly resulted in death to a patient in whom a kidney pelvis apparently harbored hemolytic streptococci throughout pregnancy.

These observations make us conclude that a certain amount of puerperal sepsis is outside the control of the physician and his technique and it seems to us important that this knowledge should be recognized by the laity as well as by the doctor. It is manifestly unfair to blame the doctor for every case of puerperal sepsis if these facts are true. On the other hand if these facts are not recognized and the physician is blamed unfairly for every case, it leads to a departure from facts in the report of these cases.

In conclusion we feel that while every effort should be made by every physician to make his obstetrical work absolutely clean in so far as conditions permit and to carry out his operating in such a way as to avoid severe wounds of the cervix, namely, to operate as infrequently as possible and as late in labor as possible when operating is necessary, none the less, especially if he has carried out these precautions he should not bear the blame for all cases of puerperal sepsis.

Should there be any disagreement with the viewpoints herein expressed or any inquiries concerning the evidence more specifically on which these ideas are based, a letter of inquiry sent to this column will be further discussed at a later date.

Questions of a similar nature to the above will be discussed in the JOURNAL each week. They may be addressed to the Clerk of the Committee, in care of the JOURNAL and will be answered by members of the Committee of the Section of Obstetrics and Gynecology.

THE BOSTON MEDICAL LIBRARY*

THE Boston Medical Library purposes to make available the material which is in its various collections of books, pamphlets, and periodicals in a way that it is believed will be helpful to those who take the little trouble necessary to visit it.

*The Boston Medical Library will furnish this JOURNAL news items from time to time setting forth its activities and plans for serving the medical profession.

In the Fifield room there will be a monthly exhibition of collections of books pertaining to the subjects most in the medical eye. These will be marked suitably and the essence of the articles will be found in typwritten form along with the originals, when possible. In advance of the changing of these exhibits the BOSTON MEDICAL AND SURGICAL JOURNAL, through a column devoted to the Libraries' activities, will give information upon what there is to be seen. From time to time during the year subjects of Historical interest will be illustrated in the same way and noticed in the same publication.

The Library, as all who frequent it must have observed, is sorely in need of more accommodation for its collections which are steadily growing, and grow they must if it is to continue its service to the community. Plans are maturing to meet these needs. In the meantime, though we are cramped for quarters, it is important that the existence of this institution as a repository for any and every thing pertaining to medical literature, history, and bibliography, however trifling it may seem, be kept before the public, lay and professional. The Library will always be glad to receive such material and will find some use for it sooner or later. Current periodicals particularly, though they may be duplicates of those subscribed to by the Library, will be very acceptable as it is hoped the Library may be able to extend the scope of its usefulness through extension service to outlying sections of the State, or even outside the State, under suitable conditions. Under such an arrangement duplicate journals would be of great value.

The success of the Art Exhibit encourages us to the belief that the Library may be made to serve and instruct those for whom the customary ways of using it are not practicable and it is with the hope that many such may be discovered that some innovations are to be tried out. There is a wealth of material here that should be more extensively used and though not all practitioners have time to devote to so exhaustive a study of a subject as should be carried out if they are to make a legitimate contribution to literature, nevertheless the available periodic literature should be drawn upon more constantly than it is by those who would keep abreast of the times. Familiarity with medical literature might easily prevent much unnecessary and unprofitable duplication of publication and fruitless research, for a good library is an excellent laboratory in which to apply the acid test to one's new ideas.

A plan is on foot to provide a practical course in the art of using a large collection of books for research purposes. This will be open to any who show a desire to make the acquaintance of this Library's resources. In this column information will later be given as to the final working out of this plan. It should be a source of pride to the Medical profession to support by

membership, if in no other way, an institution of this sort, just as it is the pride of those cultured members of the community who are interested in the Arts and Music to support the Museum of Fine Arts and the Symphony concerts. If the Library is to expand with the growing volume of scientific and medical literature it must have the resources with which to do this and no easier way exists than by becoming a Fellow or an Associate and thereby cultivating a civic as well as a professional pride in an Institution that needs help and has amply justified the support it has enjoyed in the past.

MISCELLANY

RECOMMENDATIONS RELATING TO THE PUBLIC HEALTH

The recommendations relating to the promotion of the public health submitted by Surgeon General H. S. Cumming, of the Public Health Service, in a recent report to Congress, are of great interest. Surgeon General Cumming draws attention to the fact that the state of the health of the nation has a profound bearing on economic, social and political advancement. He states that it is pertinent, therefore, to recommend additional means necessary not only to guard against the spread of disease, but to determine its underlying cause. The saving of life and the reduction of disability that have been effected in recent years are attributable almost wholly to the extension of our knowledge. It is through this means that further advances may be expected. Problems of health, however, are becoming increasingly complex and their solution will require greater specialization.

Scientific research work in public health has shown conclusively that it is a good investment. The sums appropriated for this purpose as relates to the health of man are inadequate, however, when compared to those expended for the protection of property rights, including the health of living property. A larger proportion of money and effort should be devoted to researches which will enable the owner to improve health, the better to develop and enjoy his property. A reasonable increase of financial support of this work such as could be efficiently undertaken by existing agencies is strongly recommended.

In order to further promote efficiency in public health research, provision should be made in law for the coördination of this activity in government and such rearrangement of administration or organization as may be necessary to be carried on.

A bill was introduced in the last Congress providing for the coördination of public health activities, such rearrangement of organization as may be necessary to bring it about, and the unification of the status of professional and scientific personnel performing the work. The hearings held before the subcommittee on this measure indicated the widespread interest in legislation to coördinate Federal public health activities. The opinion of representative medical, public health and sanitary engineering organizations, universities and life insurance companies was unanimous that the coördination of Federal public health work through an enlarged and better equipped Public Health Service would tend to eliminate duplication of effort in administration, in research and in educational measures.

This report also points out that it is considered essential that the sanitary work undertaken by the Public Health Service in connection with the prevention of epidemic diseases in the flooded area, be carried to completion. Recommendation is made that funds be made available for such purpose.

Attention is also invited to the fact that the floating equipment at several of the maritime quarantine stations is in urgent need of repairs. The need for the construction of a quarantine station at New Orleans, La., is also emphasized.

Notwithstanding the great growth of commerce and development brought about by the oil and other industries in the Lake Sabine district of Texas, adequate quarantine facilities have not been provided for this port.

Modern marine hospitals are needed at Galveston, Texas, and Seattle, Washington. Replacement of dilapidated frame structures with modern hospital buildings of larger capacity are required at New Orleans, La., Stapleton, N. Y., and Baltimore, Md.

THE AFTERMATH OF THE MONTREAL TYPHOID EPIDEMIC, AND OTHER PROBLEMS OF THE FOOD HANDLER

At a Session of the Food Conference held at The Twentieth Century Club, January 27, 1928, Dr. George H. Bigelow, Commissioner of Health for Massachusetts, stated that Massachusetts may find that typhoid carriers will persist as a feature of the Montreal epidemic and in coming to Massachusetts they may be the source of outbreaks. This possibility imposes upon this and other States the conferring of authority on health officers to deal with suspected carriers as conditions may demand.

Employers of food handlers should coöperate with health authorities in dealing with this problem. People who are dependent on restaurants and lunch counters will be more free from apprehension if made aware of the campaign under way.

With respect to food handlers at this conference Dr. Ernest M. Morris, Health Commissioner of Fall River, spoke on "Restaurant Supervision in Cities," Dr. P. H. Mullowney, Deputy Commissioner of The Boston Health Department, on "Food Inspection in Boston," and Dr. A. P. Goff, Health Officer of Barnstable County, on "Food Supervision in the Small and Rural Communities."

UNITED STATES PUBLIC HEALTH SERVICE

INVESTIGATIONS OF PUBLIC HEALTH PROBLEMS

A report of great interest relating to investigations of public health problems by the Public Health Service has been recently submitted by Surgeon General H. S. Cummings to Congress. Surgeon General Cumming shows that the investigative work of the Public Health Service has continued to justify the confidence which is now placed in the submitting of public health problems to scientific analysis as a means of devising practical solutions.

The larger continuing projects have been successful in bringing studies to completion, making possible the taking up of new topics presented by advancing knowledge or by changing environment, while many contributions of value have come from the smaller studies.

The stream pollution studies have progressed favorably in both their scientific and applied departments. The laboratory work in the chemistry and biology of natural and artificial purification of polluted water has revealed new details, while the studies of plant operation and of actual conditions in streams and lakes have been of immediate practical benefit. The co-operative study of the Mississippi River where it forms the boundary between Minnesota and Wisconsin, was brought nearly to completion during the year, making possible the inauguration of remedial measures.

The malaria studies have demonstrated the possibility of airplane control by spreading larvicidal dust over otherwise inaccessible breeding areas, thus

adding a new means of defense against malaria. The limitations of the method remain to be determined, and the end of the fiscal year found active experimentation for this purpose under way. The studies of screening of poorly constructed houses of a type prevalent in certain malarious regions was particularly opportune, and placed a valuable means of control at the disposal of those responsible for the sanitary rehabilitation of the flooded areas of the Mississippi Valley. Other studies of impounded waters, habits of mosquitoes, etc., were continued with satisfactory progress.

The studies of health problems in industry have progressed along definite well-planned lines of inquiry. Portions of the major topic of dust in industry have been completed. The newly prevalent process of spray coating has been investigated and a report is in preparation. Studies of industrial morbidity have been continued and results of value to employers and employees obtained. The studies of illumination of workrooms have yielded further data on the relation between the lighting and the amount and character of work performed and the effects on the visual health of the workers. An interesting study of the loss of available daylight due to smokiness of the atmosphere was carried on. The posture studies on high school children, destined for application in industry, were completed, and the advantages of exercise to health have already appeared in the analysis.

In the child health investigations the continued studies of the physical stature, growth and development of school children in a representative small city were prosecuted along the original lines. Analysis of certain phases of the observations were prepared for publication. Other activities consisted of studies of negro children for comparative purposes, of daylight illumination of schoolrooms, of vision, and of infant mortality.

The milk investigations, continued during the year, have been very successful. The standard ordinance advocated by the Service has now been adopted in 160 cities and its operation is being watched and measured with a view to making improvements and to determining its range of applicability. The importance to both health and industry of establishing some generally recognized standard cannot be overemphasized. In addition to greatly improving the sanitary quality of milk, the ordinance referred to has had the effect of nearly doubling the sales of market milk. Excellent progress had been made in the task of testing pasteurizing apparatus for the purpose of ascertaining defects of design, construction, and operation, and the development of more efficient machines.

The studies of Rocky Mountain spotted fever have continued to yield most encouraging results. Nearly 1,500 persons in the infested area were vaccinated with the preparation devised and manufactured by Service officers. Two non-fatal cases of infection occurred among the vaccinated, while 30 cases with at least 12 deaths were known to occur among non-vaccinated personnel similarly exposed. This, however, is not considered conclusive evidence of the value of the vaccine. More convincing is the fact that five mild infections, with prompt recovery, have occurred in vaccinated persons who were much exposed to laboratory infection, whereas previous to the use of vaccine the five laboratory infections which occurred were fatal.

The survey of salt-marsh mosquitoes conducted in co-operation with the Bureau of Entomology, Department of Agriculture, completed its first season of work with a good record of progress. It was found that although there are nearly 6,000,000 acres of salt marsh along the Atlantic and Gulf Coast, the acreage actually requiring mosquito control can be expressed rather in the tens of thousands. Reconnaissance surveys have been made of representative areas throughout the whole coast line, and detailed studies were conducted at several strategic points. Studies have been made of the breeding habits of the five principal species of mosquitoes encountered and of methods of eradication.

The studies of nutrition have continued to concern themselves chiefly with pellagra in human beings and pellagra-like diseases in certain experimental animals. This course was determined by exceptional opportunities for applying to persons suffering from or predisposed to pellagra and curative or preventive measure which had proved effective in the lower animals.

At the leprosy investigation station at Honolulu, studies of the epidemiology course and treatment of leprosy were continued. The search for cheaper and better preparations to be used in treatment was carried on, and the manufacture of the drugs used locally was continued. These investigations have had the effect of rendering the task of isolating lepers throughout these islands an easier one, since the possibility of recovery through medical attention and the hope of parole or cure lead concealed lepers to seek these benefits rather than to avoid detection.

The puzzling disease trachoma, still distressingly prevalent in certain parts of the country, has been the subject of two distinct researches during the year. In one the search for the microscopic cause and possible means of cure has been carried on in the laboratory. In the other it has been sought by painstaking collection of data at the homes of those afflicted, to learn more about the natural history of this disease and the means of its spread.

The Hygienic Laboratory has maintained its traditional excellence of work and output. The timeliness of the studies on pellagra have been demonstrated by the application of results to an unusual prevalence of this disease in the flooded areas in the South. The value of the studies on tularaemia is shown by the fact that the disease has now been found in 34 States and the District of Columbia, and that transmission by another form of tick, in addition to that already known, has been demonstrated. By the publication of suitable papers it is hoped that knowledge of the means of recognition and prevention of these diseases has been furnished to health officials and physicians. The co-operative studies of tuberculosis in which the researches of a number of outstanding institutions are co-ordinated, have made excellent progress, and constitute a demonstration of the value of such an arrangement when similar or related work is being carried on in a number of places. The studies of Malta fever have furnished further evidence of the danger to man, not only of contracting the disease from goats, but also of acquiring an indistinguishable condition from cattle. The studies in typhus fever have proved opportune, inasmuch as there is an apparent increase in the incidence of this disease in portions of the country; and while there is no definite menace of a large epidemic, the need for more knowledge is urgent. Studies of trachoma, pneumonia, epidemic encephalitis, and vaccination sequelae have been continued with satisfactory progress. Further studies of narcotic addiction indicate a reduction of the numbers of habitues, and confirm the opinion previously arrived at that addiction is, in general, a symptom of neuro-psychopathic make-up. Work on the critical assembling of data on the parasites of man and other hosts and the preparation of results for publication have made good progress: studies on syphilis have indicated the possibility of more rapid progress in the control of this disease through more intensified forms of treatment. Further advance has been made in the knowledge of the method and action of potent

drugs which may lead to improvements in their preparation. Good progress has been made in the study of the universal phenomenon of oxidation as applied to questions of public health interest. The work of controlling the sale of biologic products has continued to furnish an important service to the public. The outstanding accomplishment of the year in this respect has been the preparation of standard test substances for the potency of biologic products used in the prevention and treatment of scarlet fever. A license was issued for a serum to be used in the treatment of snake bites.

LEGISLATIVE NOTE

DRAFT OF HOUSE BILL 167 FOR 1928 SESSION OF THE LEGISLATURE

AN ACT RELATIVE TO THE SALE OF MILK

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

SECTION 1. Chapter ninety-four of the General Laws is hereby amended by inserting after section twenty-two the following new section:—

SECTION 22A. Whoever, himself or by his servant or agent, sells, exchanges or delivers, or has in his custody or possession with intent so to do, milk drawn from a cow, unless such cow has been tested within a period of one year by a tuberculin test, approved by the director of animal industry, and has been found not to react thereto, shall be punished for the first offense by a fine of not less than twenty-five dollars nor more than one hundred dollars, for the second offense by a fine of not less than fifty dollars nor more than two hundred dollars, and for a subsequent offense by a fine of fifty dollars and by imprisonment for not less than two nor more than three months. This section shall not apply to milk delivered or intended to be delivered for pasteurization nor to pasteurized milk as defined in section one, nor to milk from producers whose application is on file with the division of animal industry for an official test under the provisions of Chapter 353 of the Acts of 1922.

SECTION 2. This act shall take effect in towns having a population of twenty thousand or more on the first day of January, nineteen hundred and twenty-nine, in towns having a population of more than ten thousand but less than twenty thousand it shall take effect on the first day of January, nineteen hundred and thirty, and in towns having a population of more than five thousand but less than ten thousand it shall take effect on the first day of January, nineteen hundred and thirty-one. This act shall apply to any town upon acceptance at a town meeting.

CORRESPONDENCE

OFFICIAL ACTIONS BY THE BOARD OF REGISTRATION IN MEDICINE

Editor, Boston Medical and Surgical Journal:

At the Board meeting held January 26, 1928, the following actions were taken:

Dr. Freeman W. MacDonald—Registration suspended for six months from date.

Dr. Herbert P. Jefferson—Case dismissed.

Dr. Elias Nathanson—Case placed on file with instructions to report to the Board every six months until further notice. This report to be made in person.

Dr. Christian A. Nelson—Registration revoked.

Frederick Dugdale—Case postponed. At the time for this hearing the Board was served with writ of mandamus (returnable January 31) to compel the Board to furnish specifications.

Very truly yours,
DR. FRANK M. VAUGHAN, *Secretary.*

NEWS ITEMS

THE DEDICATION OF THE NEW WING OF THE MASSACHUSETTS WOMEN'S HOSPITAL — The Massachusetts Women's Hospital was started in 1889 and has been maintained by the Women's Charity Club.

The original cost of the hospital was $175,000 and it has become necessary to increase the capacity in order to meet the needs of patients.

This addition consists of a two-story cement wing with brick finish in which are twenty-three private rooms. It is connected with the main building by a double passage-way.

The furnishings and equipment of this addition have been donated and this department is a valuable addition to the hospital.

The dedicatory exercises were conducted on Sunday, January 29, at which Governor Fuller was present and spoke and Dr. Henry T. Hutchins delivered an address.

THE SUCCESSOR TO THE LATE DR. FRANCIS W. PEABODY—Dr. George R. Minot has been chosen by the Trustees of the Boston City Hospital to succeed the late Dr. Francis W. Peabody as Director of The Thorndike Research Laboratory, which is a department of the Boston City Hospital.

It is generally recognized that Dr. Minot is the logical choice of the Trustees because of his eminent position in medical research and his indefatigable devotion to the study of medical problems.

His name will always be recorded among those who have advanced the scientific knowledge of medition being the demonstration of the value of the so-called liver diet in the treatment of pernicious anemia.

cine in several important fields, the latest contribu-

His acceptance of this important office carried the assurance of further elucidation of some of the mysteries of disease.

This appointment will be universally endorsed. Dr. Joseph T. Wearn will continue his work in the laboratory in association with Dr. Minot.

BOSTON DOCTOR TO DELIVER ADDRESS BEFORE THE NEW YORK ACADEMY OF MEDICINE—Dr. Fritz Bradley Talbot of Boston will speak before the Section of Pediatrics of the New York Academy of Medicine, Thursday evening, February 9. His subject will be the Ketogenic Diet in Epilepsy.

BOSTON STANDS AS A CLEAN CITY—Professor Samuel E. Dibble of The Carnegie Institute of Technology, as quoted in the daily papers, affirms that Boston is the cleanest city in the United States so far as dust particles in the atmosphere are concerned.

This opinion is based on a study of conditions in twenty-three American Cities by H. C. Murphy of Louisville, Ky.

St. Louis has 17,600 dust particles per cubic foot of air, Cincinnati 16,770, Pittsburgh 16,100, Detroit 15,300, Chicago 14,000, while Boston has only 5,300.

Smoke abatement has much to do with the improvement of conditions in cities.

ADVANCES IN MEDICINE IN 1927—*Science* has listed the advances in medicine which 1927 has seen brought about, and a few of the more important are as follows:

A "heart hormone", discovered by Dr. Ludwig Haberlandt, of the University of Innsbruck.

Thyroxin produced synthetically in the laboratories of University College, London, by Dr. C. R. Harrington and Professor George Barger.

Crystalline insulin produced by Professor J. J. Abel, of the Johns Hopkins University.

Liver extract, as a cure for pernicious anemia, discovered by Doctors George R. Minot, William P. Murphy and E. J. Cohn.

Discovery by Dr. Hideyo Noguchi of the organism of trachoma.

REMOVAL

Dr. Edmund Myers announces the removal of his offices to 536 Commonwealth Avenue at Kenmore Station.

ANNOUNCEMENT

Dr. Rodney Davenport Turner, announces the opening of an office at 56 Pembroke Street, Newton.

NOTICES

A COURSE OF FIFTEEN LECTURES ON THE NEWER KNOWLEDGE OF THE PHYSICAL HEALTH OF CHILDREN

will be given in Boston University School of Education by eminent experts on child health under the direction of J. Mace Andress, Ph.D., Lecturer on Health Education, Boston University and Boston School of Physical Education, and with the coöperation and endorsement of the Massachusetts Department of Public Health.

The lectures will be given on successive Tuesday evenings, at 8 o'clock, in Jacob Sleeper Hall, Boston University, 688 Boylston Street, Boston, from February 7 to March 27, April 10 to May 22.

The course will be of practical value to teachers, parents, nurses, scoial workers, and to all who are responsible for the training of children. These lectures will be plain, common-sense talks in non-technical language that attempt to present the latest thought on the physical health of children. Each lecture is followed by a period of general discussion.

Credit of one point will be given toward the degree of Bachelor of Science in Education in the School of Education. Those enrolling for degree credit must attend at least thirteen lectures and meet the other requirements announced by the Director of the course.

No charge is made for the lecture on February 7. The fee for a transferable course ticket is $10.00. Single admission tickets are sold at $1.00 each.

I—Dramatic Episodes in Health Progress. February 7. J. Mace Andress, Lecturer on Health Education, Boston University and Boston School of Physical Education.

II—Safeguarding the Health of Mother and Baby. February 14. Merrill E. Champion, M.D., Director, Division of Hygiene, Massachusetts Department of Public Health.

III—Modern Chemistry in the Service of Health. February 21. Gorham W. Harris, Ph.D., Associate Professor of Chemistry, Simmons College, Boston.

IV—At the Threshold of School Life. February 28. Richard M. Smith, M.D., Assistant Professor of Child Hygiene, Harvard School of Public Health.

V—Diabetes and Recent Discoveries. March 6. By Helmuth Ulrich, M.D., Associate Professor of Clinical Pathology, Boston University School of Medicine.

VI—The Common Cold. March 13. M. J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard University Medical School.

VII—The Newer Knowledge of Nutrition. March 20. Lou Lombard, Health Instructor in Nutrition, Division of Hygiene, Massachusetts State Department of Public Health.

VIII—The Present Ideas of Dental Hygiene. March 27. Harold DeW. Cross, D.M.D., Director, Forsyth Dental Infirmary for Children.

IX—The Annual Physical Examination. April 10. Fredricka Moore, M.D., Pediatrician, Massachusetts State Department of Health.

X—Cardiac Troubles in Childhood. April 17. William H. Robey, M.D., Assistant Professor of Medicine, Harvard Medical School.

XI—The New Physical Education. April 24. Carl Schrader, State Supervisor of Physical Education.

XII—Stand Tall, Sit Tall. May 1. Norman W. Fradd, Instructor in Physical Education, Harvard University.

XIII—Sunshine and Recent Developments in Hygiene. May 8. O. R. Chadwell, M.D., Professor of Pediatrics, Boston University School of Medicine.

XIV—Educational Methods for Accident Prevention. May 15. Lewis E. MacBrayne, General Manager, Massachusetts Safety Council.

XV—The Health Education Program. May 22. J. Mace Andress, Ph.D., Lecturer on Health Education, Boston University and Boston School of Physical Education.

UNDERSTANDING THE CHILD AND HIS NEEDS

This course which has proved so helpful to parents, teachers, students, and others interested in child welfare will be offered again next fall under the direction of Dr. Andress. Some of the most outstanding authorities in this new and attractive field of mental health have already been engaged for this course.

CUTTER LECTURES ON PREVENTIVE MEDICINE

These lectures will be delivered this year by Wade Hampton Frost, M.D., Surgeon, U. S. Public Health Service; Professor of Epidemiology, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Maryland.

The subject scheduled for February 2, 1928, is "Infection, Immunity and Disease in the Epidemiology of Diphtheria, With Special Reference to Some Studies in Baltimore". Dr. Frost will speak on "Some Conceptions of Epidemics in General" on February 3, 1928.

The lectures will be delivered at 5 P. M. in Amphitheatre Building E, Harvard Medical School.

These lectures are given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be styled the Cutter Lectures on Preventive Medicine and that they should be delivered in Boston and be free to the medical profession and the press.

The medical profession, medical and public health students, the press and others interested are cordially invited to attend.

UNITED STATES CIVIL SERVICE EXAMINATION

TOXICOLOGIST, $3,800

Applications must be on file with the Civil Service Commission at Washington, D. C., not later than February 7, 1928.

The United States Civil Service Commission announces an open competitive examination for the position named above. Vacancies in the Bureau of Chemistry and Soils, Department of Agriculture, for duty in Washington, D. C., or in the field, and in positions requiring similar qualifications, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Salary and Promotion—The entrance salary for this position in Washington, D. C., is $3,800 a year. A probationary period of six months is required; ad-

vancement after that depends upon individual efficiency, increased usefulness, and the occurrence of vacancies in higher positions. For appointment to the Field Service the salary will be approximately the same.

REPORTS AND NOTICES OF MEETINGS

WORCESTER DISTRICT MEDICAL SOCIETY

The January meeting of the Worcester District Medical Society was held at the Worcester Chamber of Commerce Building on January 11, 1928. This was a joint meeting with the Worcester District Dental Society. President Washburn presided at a short business meeting at 6 P. M., followed by a dinner at the Hotel Bancroft.

At 8 o'clock the speaker of the evening, Dr. Timothy Leary, Professor of Pathology at Tufts Medical School, was introduced by Dr. Washburn. Dr. Leary chose "Colonial Post Mortems and Salem Witchcraft" as his subject. This subject had been developed by Dr. Leary consequent to his exhaustive search into the origin of the coroner system. The address proved to be very interesting as Dr. Leary unfolded the basic principles of witchcraft as it was practiced in the early eighteenth century. Dr. Leary is to be commended for this very excellent talk for it showed considerable thought and study.

Dr. Faulkner, president of the Worcester District Dental Society, closed the meeting with a few brief remarks encouraging occasional joint meetings between the two societies.

The meeting was adjourned at 9:45 P. M.

EARL E. FIPPHEN, *Reporter.*

WORCESTER NORTH DISTRICT MEDICAL SOCIETY

A regular meeting of the Worcester North District Medical Society was held Tuesday, January 24, at 4:30.

PROGRAM

1. Entertainment by the Staff.
2. Scientific program, "Some Indications for the Caesarean Operation," Dr. Wheeler.
3. "Endocarditis in Children," Dr. W. E. Currier.

REPORT OF THE JANUARY MEETING OF THE PLYMOUTH DISTRICT MEDICAL SOCIETY

About thirty men met at G. A. R. Hall, Abington, on Thursday, January 19, at 11 o'clock, and after disposing of a few matters of business listened to a fine eulogy on the late Dr. Amasa Elliot Paine, read by Dr. A. C. Smith of the Society.

Following this eulogy, Dr. Wm. D. Reid of Boston University Medical School gave a very interesting talk on Cardiac Arrhythmia, using two printed schemes which had proved to him very useful in the teaching of certain cardiac conditions, and particularly with reference to the arrhythmias. His talk was quite extended and somewhat technical, but certainly left with the hearers the impression that the various types of arrhythmias could be more or less definitely separated and understood, and that once understood, the line of treatment was usually rather definitely indicated.

Following this address by Dr. Reid, the Society had lunch.

LORING B. PACKARD, M. D.
Secretary.

MEETING OF THE MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH

The annual meeting of this association was held at the Hotel Bellevue, Boston, on January 26, 1928. There were 125 members in attendance. After the luncheon the President, Mr. John J. McGrath of Salem, called the meeting to order and pending the arrival of Dr. George H. Bigelow, the first speaker on the program, who was in conference with the Board of Registration in Medicine on an important matter, introduced Mr. William H. Hardy, formerly Secretary of the Boston Department of Public Welfare. Mr. Hardy gave an account of the Settlement Laws as applied to the problem of tuberculosis patients who have to be supported by the State or municipalities.

In leading up to present conditions he gave a historical review of English settlement laws by which the early Massachusetts laws were patterned and gave a concise account of the settlement laws in force in this State at the present time. The details of these laws are complicated and care must be exercised by officials in following the letter of the law with respect to timely notification of the authorities interested or municipalities may lose their rights in given cases. The address was a scholarly presentation of the subject.

Dr. W. W. Peters, Associate Secretary of the American Public Health Association, spoke next and after detailing his wanderings in foreign lands and varying times of residences in various countries expressed the fear that he had no legal settlement but was consoled by the fact that the tax collector had not caught up with him thus far. He paid tribute to the advanced standing of Massachusetts in Public Health Matters and expressed the wish that there could be a directory of all public health organizations and persons connected with them comparable to the directory of the A. M. A. in recording the physicians of the United States to the end that more information would lead to coöperation and coördination.

He was especially pleased in being able to present the greetings of the A. P. H. Assn. and complimented the State Association on the interest shown in the work of the association as demonstrated by the large number in attendance. Dr. Scammon of the State Department of Public Health called attention to several important bills now before the legislature which will be taken care of by the committee on legislature. The business of the association was conducted with dispatch. The Treasurer, Dr. F. G. Curtis, showed that all bills had been paid and that there is an unexpended balance of $142.93 on hand.

The following officers were elected: John J. McGrath of Salem, President; Dr. M. Victor Safford of Boston, first Vice-President; Dr. J. V. Paquin of New Bedford, second Vice-President; Stephen L. Maloney of Boston, Secretary; Dr. F. G. Curtis of Newton, Treasurer; members of the executive committee, G. L. Lennon of Haverhill, Dr. L. A. Jones of Norfolk, Dr. E. N. Trowbridge of Worcester, Dr. J. A. Glennon of New Bedford, and J. R. Beckett of Springfield.

Dr. George H. Bigelow was introduced and he spoke at length on the Present Resources for Handling Tuberculosis in Massachusetts. This address was a concise report of the work which is being done by the State and local organizations. Before taking up his assigned subject he called attention to bills now pending before the legislature, especially that on the sale of milk, text of which appears on page 1483.

Although his paper is a valuable contribution to the subject and conveys exact and valuable information those who were not privileged to hear the address will miss much of the inspiration of the speaker for, in his inimitable facility of speech, quick and ready wit and apt illustrations, interjected between sentences, he drove in the meaning of the statistical evidence and roused the audience to enthusiastic approval of his work. His paper will be published February 9, 1928. Dr. George T. O'Donnell, Director of the Division of Tuberculosis, Boston Health Department, gave an interesting account of conditions in Boston. An abstract will appear after Dr. Bigelow's paper in our next issue.

NORFOLK SOUTH DISTRICT MEDICAL SOCIETY

A Stated Meeting is scheduled for Thursday, February 2, 1928, at 12 o'clock noon at the Quincy City Hospital. An interesting program has been prepared by the Medical and Surgical Staffs. Dr. Roger C. Graves will discuss Hematuria and the Prostate Problem from the standpoint of the general practitioner.

Dr. Charles Whalen will have an exhibit in the X-ray Department.

D. A. BRUCE, M.D., *President.*
N. R. PILLSBURY, M.D., *Secretary.*

WINTER TRAINING COURSE FOR MEDICAL RESERVE OFFICERS

The February meeting of the Winter Training Course for Officers Medical Section, Organized Reserves, U. S. Army, in Boston and vicinity will be held on the 8th at the University Club, 40 Trinity Place, Boston, Mass.

The meeting will begin promptly at 8:00 P. M. The room number will be on the announcement board at entrance on first floor. Officers attending the meeting will be given credit for participation in military activities.

GREATER BOSTON MEDICAL SOCIETY

A regular meeting of the society will be held on Tuesday, February 7, 1928, at 8:15 p. m., at the Boston Medical Library.

PROGRAM

Case records will be discussed by:

1. Dr. Richard C. Cabot, "A Case of Dyspnoea".
2. Dr. John Lovett Morse, "Intermittent Periods of Cyanosis and Coughing from Birth".
3. Dr. Edward L. Young, "Diarrhea for Seven Months, Anemia".

The autopsy reports will be read and the notes on the pathological findings will be discussed by Dr. Tracy B. Mallory.

All those who are interested are cordially invited. Refreshments.

ROBERT SLATER, M.D., *Secretary.*
68 Bay State Road, Boston, Mass.

NEW ENGLAND PEDIATRIC SOCIETY

The one hundred and fourth meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, February 10, 1928, at 8:15 P. M.

The following paper will be presented:

The Thymus Obsession, John Lovett Morse, M.D., Boston.

To be discussed by: P. F. Butler, M.D., Boston; L. B. Morrison, M.D., Boston; C. T. Porter, M.D., Boston.

Light refreshments will be served after the meeting.

WILLIAM W. HOWELL, M.D., *President.*
RANDOLPH K. BYERS, M.D., *Secretary.*

MASSACHUSETTS GENERAL HOSPITAL

Staff Meeting, Moseley Memorial Building, Thursday, February 9, 1928, at 8:15 P. M.

(1) Demonstration of Cases.

(2) Pain in the Pleura, Peritoneum and Pericardium—Dr. Joseph A. Capps of Chicago, Prof. of Medicine, Rush Medical College, Chief of Medical Staff, Cook County Hospital, Alumnus Massachusetts General Hospital.

Physicians, students and nurses are cordially invited to attend.

BOOK REVIEWS

Max von Pettenkofers, His Theory of the Etiology of Cholera, Typhoid Fever and Other Intestinal Diseases, a Review of His Arguments and Evidence. By EDGAR ERSKINE HUME, M.D. Paul B. Hoeber, New York, 1927. xv-142 pages. 8 plates.

Pettenkofer's name is chiefly remembered because of his pioneer work in the teaching of hygiene as a separate branch of medical science. He established the first Hygienic institute in Munich, in 1879, and gave to his native city a pure water supply, the first great city in the world to have that blessing. In addition, Pettenkofer was a very versatile man. He made early important experiments in chemistry and his bile salts reaction is still used in our laboratories.

Dr. Hume has written a sympathetic biography of Pettenkofer and added to it extracts from important papers written by this scientist on the etiology of cholera. The book closes with a complete bibliography of Pettenkofer's contributions to science.

In the opinion of the author Pettenkofer is entitled to a place in the ranks of the great men of science on account of his work in chemistry and physiology, which is still accepted. His work in epidemiology is important, but for a different reason. His hypothesis regarding the etiology of cholera and typhoid fever is no longer tenable, but in so forcibly defending his ideas, he stimulated others to great discoveries. His pupils were many and their work has added much to the sum of human knowledge. He made the city of Munich a model for other cities, not merely from the standpoint of beauty, but also of health.

Feeding and the Nutritional Disorders in Infancy and Childhood. By JULIUS H. HESS. Fifth revised and enlarged edition. Publisher: F. A. Davis Company.

This book in its fifth edition represents now one of the standard texts of infant feeding and nutritional disturbances occurring during this cycle of life. The volume gives in a sufficiently detailed manner a discussion of the chemistry of infants' food together with the physiological changes during digestion. A clear discussion both of methods of Infant feeding and a classification as based on modern conceptions of nutritional disorders is given. The chapters on Scurvy, Infantile Tetany and Rickets are especially to be recommended to Medical students and those interested in diseases of infancy. The reviewer knows no other book on the subject that contains so many practical suggestions in regard to the care of infants and the preparation of the infant foods, as are outlined in the appendix.

BOOKS RECEIVED FOR REVIEW

X-Rays and Radium in the Treatment of Diseases of the Skin. By George M. McKee, Philadelphia. Lea & Febiger. 788 pages. Price $10.00.

A Textbook of Practical Therapeutics. By Hobart Amory Hare. Philadelphia. Lea & Febiger. 1094 pages. Price, $7.50.

The Extra-Ocular Muscles. By Luther C. Peter. Philadelphia. Lea & Febiger. 294 pages. Price, $4.00.

Poliomyelitis with Special Reference to the Treatment. By W. Russell MacAusland. Philadelphia. Lea & Febiger. 402 pages. Price, $5.50.

Annals of the Pickett-Thomson Research Laboratory. Baltimore. Williams & Wilkins. 316 pages.

Die Chirurgie. Urban & Schwarzenberg.

Proceedings of the Medical Association of the Isthmian Canal Zone. Mt. Hope, C. Z. Panama Canal Press. 133 pages.

The David Elder Infirmary Govan. By David Murray. Glasgow. Jackson Wylie & Co. 32 pages.